U9200 Maintenance Manual

V1.0

Prepared by		**Date**	2012-03-08
Reviewed by		**Date**	
Approved by		**Date**	

Huawei Technologies Co., Ltd.

Change History

Date	Version	Change Reason	Section No.	Description	Author
2012-03-08	V1.0				Li Xianxi

Contents

1 Product Introduction

1.1 Appearance

Figure 1-1 shows the U9200.

Figure 1-1 U9200

1.2 Features

Table 1-1 lists the specifications of the U9200.

Table 1-1 Specifications of the U9200

Item	Specifications
Phone type	Touchscreen smartphone
Dimensions (H x W x D)	7.69 mm x 129 mm x 64.8 mm
Working band	GSM/GPRS/EDGE: 850/900/1800/1900 UMTS: W850/W900/AWS/W1900/W2100 HSPA+: downlink 21 Mbps; uplink 5.76 Mbps
Weight	About 110 g
Technical standard	WCDMA/GSM

Item	Specifications
System platform	OMAP4460 + XMM 6260 OS: Android 4.0
Memory	4 GB ROM + 1 GB RAM
Ports	Micro USB (for charging and data transmission) 3.5 mm headset jack MHL port;
Battery	1670 mAh Li-ion battery
Display	Size: 4.3 inches Category: AMOLED Resolution: 960 x 540 pixels (qHD)
Expansion card	Supports a maximum of 32 GB microSD card
Antenna	Built-in antenna
Camera	Rear camera: 8 megapixels, with dual LED flashlights Front camera: 1.3 megapixels
Bluetooth	Bluetooth 3.0
Wi-Fi	802.11b/g/n
GPS	GPS, AGPS
FM	Supported
Features	WCDMA/GSM Android 4.0 4.3-inch QHD AMOLED, capacitive touchscreen 1670 mAh Li-ion battery Rear camera: 8 megapixels, autofocus, with dual LED flashlights Front camera: 1.3 megapixels Gravity sensor, proximity sensor, light sensor, and gyroscope Bluetooth, FM, GPS/AGPS WCDMA 3G/WLAN Huawei's Android app-store, Hi-Space

2 Applicable Scope and Precautions

2.1 Applicable Scope

This document provides repair instructions for technicians at service centers authorized by Huawei. This maintenance manual is confidential and accessible to authorized service centers (ASCs) and authorized service providers (ASPs) only. While every effort has been made to ensure the accuracy of this document, errors may still exist. If you find any errors or have any suggestions, please contact Huawei's customer service.

2.2 Precautions

- Only qualified technicians are allowed to perform repair and calibration.
- Perform all operations in electrostatic discharge (ESD) rooms and wear ESD wrist straps throughout the operations.
- Ensure that all components, screws and insulators are properly installed after repair and calibration, and that all cables and wires are installed and connected correctly.
- Ensure that the soldering is lead-free and compliant with eco-friendly requirements.

ESD is the main cause of damage to electrostatic-sensitive components. Each ASC must exercise caution to avoid ESD damage and comply with the ESD protection requirements in this manual.

2.3 How to Obtain Product and Repair Information

To obtain information about Huawei's products and their maintenance, please visit Huawei's website at

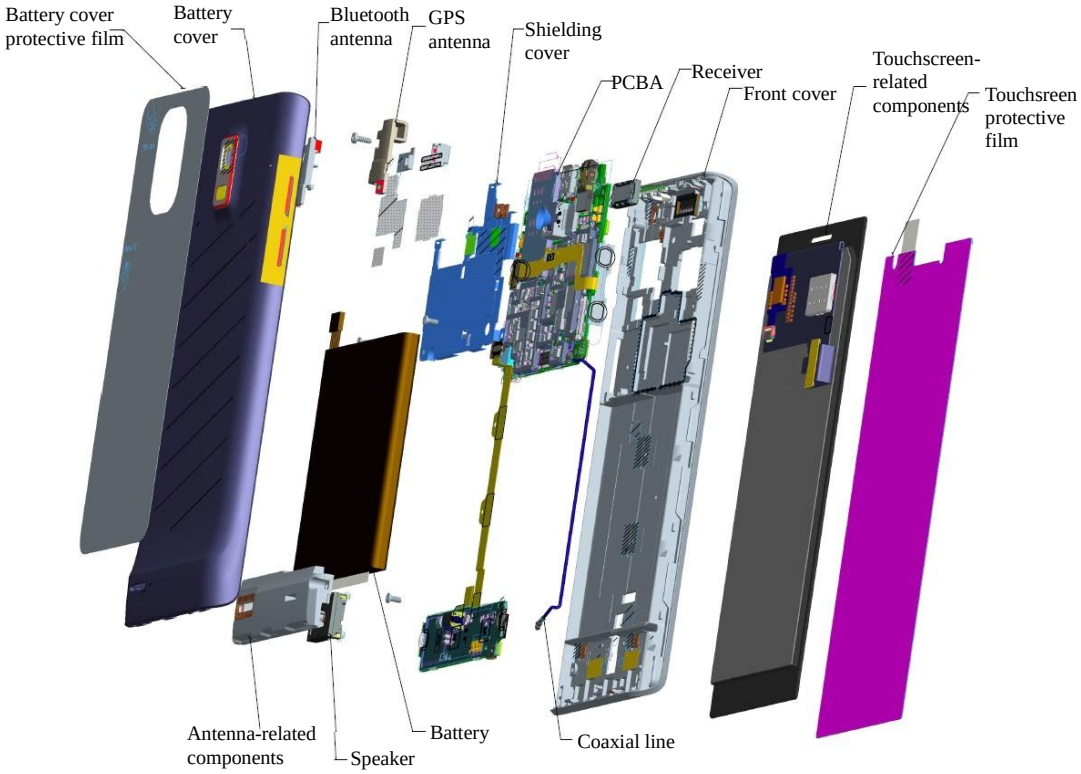
http://www.huaweidevice.com/cn/technicaIndex.do

3 Exploded View

3.1 Exploded View

Figure 3-1 shows the exploded view of the U9200.

Figure 3-1 Exploded view of the U9200



NOTE

The components shown in the Figure 3-1 are structural parts of the phone, and cannot be used as reference when requesting spare parts.

3.2 Component List

Table 3-1 lists the components of the U9200.

Table 3-1 Components of the U9200

Part Number	Description	Quantity
03021PLT	Manufactured Board, U9200-1, HD1U9200MG, U9200-1Handset Main Board (GSM 4 Band, W2100/W1900/W1700/W900/W850), Terminal Dedicated, 2*2	1

Part Number	Description	Quantity
03021KAQ	Manufactured Board, U9200, HD1U9200LS, U9200 light sensor FPC(GSM 4 band, W2100/W1900/W1700/W850W/W900),1*1	1
03021KAH	Manufactured Board, U9200, U9200FL, U9200 flash light FPC(GSM 4 band, W2100/W1900/W1700/W850W/W900),1*1	1
03021KAF	Manufactured Board, U9200, HD1U9200L, U9200 main FPC(GSM 4 band, W2100/W1900/W1700/W850W/W900),1*1	1
03021KAP	Manufactured Board, U9200, HD1U9200SP, U9200 speaker board(GSM 4 band, W2100/W1900/W1700/W850W/W900),2*6	1
22020079	Speaker, 8ohm, 0.5w,11*15*3.5(Improved), Terminal Dedicated	1
22030044	Receiver, 32ohm,6*15*2.0mm, wideband, Terminal Dedicated	1
23040221	LCD Indication Module, single display, AMOLED, 4.29",540*RGB*960,16.7M,16:9,2.368mm (typ), with touch panel, BTB	1
23060074	Camera Module Group, CMOS, 1.3M-FF-Front-HD-BTB	1
23060080	Camera Module Group, 1/3.2" CMOS/BSI, 8M, 3264*2448, Terminal Dedicated	1
27160904	Terminal Antenna, 824MHz-960MHz/1710MHz-2170MHz, larger than -3dBi, isotropic, linear polarization, smaller than 3, 4W, U9200 Main Antenna, LDS Antenna, Amphenol	1
27160905	Terminal Antenna, 1575MHz, larger than -3dBi, isotropic, linear polarization, smaller than 2, 4W, U9200 GPS Antenna, LDS Antenna, Amphenol	1
27160906	Terminal Antenna, 2400MHz-2500MHz, larger than -4dBi, isotropic, smaller than 2.5,4W, U9200 WIFI Antenna, LDS Antenna, Amphenol	1
04050383	Out Sourcing, RF Coaxing Cable, 82.5mm, fit 14240433, Terminal Dedicated	1

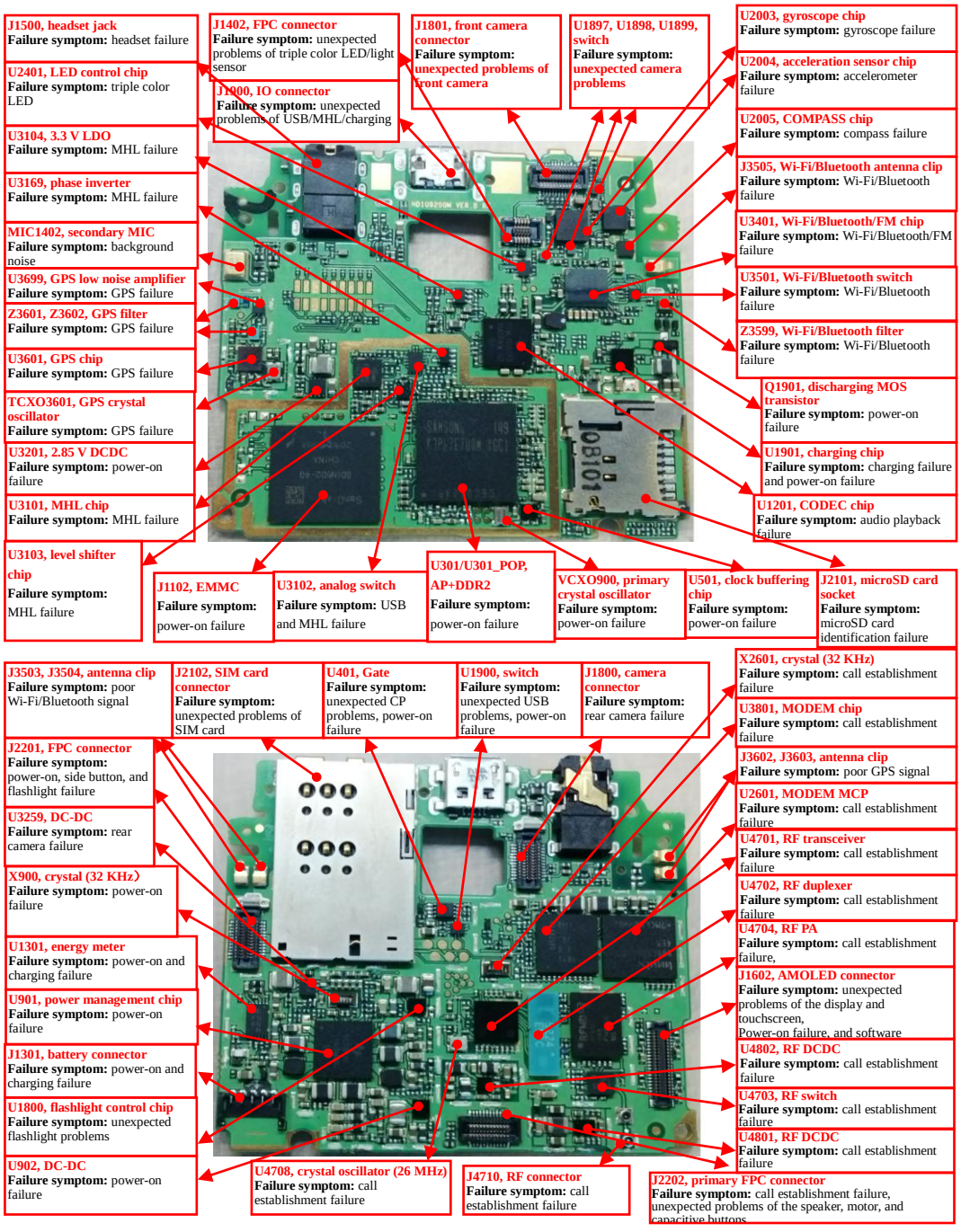
NOTE

The list of components is provided for reference only. This list is subject to change without notice. The latest component list is available on Huawei's ITEM information system. If you have any questions, contact your local technical support center.

4 Layout of Components on the Main Board

Figure 4-1 shows the U9200's main board components.

Figure 4-1 U9200's PCBA components



4.1 List of Components on the Main Board

Table 4-1 lists the U9200's main board components.

Table 4-1 U9200's main board components

Part Number	Name	Position
19040121	Protection Tube, Fast Blowout Fuse, 24 V, 2 A, IEC Spec, 0.03ohm, 0.100 A*A*Sec, UL, Terminal Dedicated	F1900
14240309	IO Connector, Female, 5pin, WTB Connector, SMT, Terminal Dedicated	J1301
14240199	BTB Connector, Female, 10Pin, 0.4mm, SMT, 0.9mm, Terminal Dedicated	J1402
14240381	Headphone Connector, 3.5mm, 6pin, Side plugging, SMT, Mid Mount	J1500
14240375	BTB Connector, female, 40Pin, 0.4mm, 0.8mm, SMT, Terminal Dedicated	J1602
14240181	BTB Connector, Female, 24Pin, 0.4mm, SMT, Mating Height 1.0mm, Terminal Dedicated	J1800, J1801, J2201, J2202
14240247	IO Connector, Micro_B Type Female, 5pins, Side Plugging Type, SMT, 4 Dip, Mid Mount, 1.5mm Height from PCB Top Side, Terminal Dedicated	J1900
14240228	Card Connecter, MicroSD Receptacle, 8pin, PUSH-PUSH, 1.1mm, Have Lock, Without Hold Peg, 1.45mm, Terminal Dedicated	J2101
14240301	Card Socket Connector, SIM Card Socket, 6pin, PUSH-PUSH, 1.25mm, With Lock, 1.2mm, Terminal Dedicated	J2102
51623073	RF shielding frame	J2451
51623077	GPS shielding cover	J2452
51623074	PMU shielding frame	J2454
51623076	main shielding cover hooker	J2481, J2482
51621274	DKBA8.382.0615, Main Antenna SMT Spring, C5600	J3503, J3504, J3505, J3602, J3603
14240433	RF Connector, Coaxial Connector, 50ohm, Straight, male, SMT, W.FL2, Terminal Dedicated	J4710
14240432	RF Connector, RF Switch, Straight, female, SMT, Terminal Dedicated	J4711
22050076	Microphone,-38dB.,3.76*2.95*1.1mm, silicon, bottom	MIC1402

Part Number	Name	Position
15060228	MOSFET, P Channel, -12V, -2.4 A, 112mohm, -8 V, SOT23, from 15060150,TS16949, Terminal Dedicated	Q1901
12070038	Temperature Compensated Oscillator, 26MHz, +/-1.5ppm(max),+1.8V, +/-0.5ppm(max), -40degC,85degC, Terminal Dedicated	TCXO3601, VCXO900
41100049	Terminal Application Processor, S-PBGA-N547, Dual Cortex-A9 1.5 GHz, 32KB, 1.2V, 32bit, 3000mW, 2000mW, HS version, Terminal Dedicated, Dual Core Cortex-A9 1.5 GHz	U301
40020151	DDR2 DRAM, 8Gb LPDDR2, 400MHz, 32bit,1.8V/1.2V, 216BALL FBGA(POP), Terminal Dedicated	U301_POP
36020320	LVCMOS, Dual 2 Input And Gate,VSSOP, 4.5ns, 24mA, LVCOMS, LVCOMS, 0ns, 0ns, 0ns	U401
39130132	Clock Driver, 0.01MHz-52MHz, LVCMOS/LVTTL,2.3V-5.5V-WCSP-1:4- Terminal dedicated	U501
39070114	Power Management IC,2.5-4.8 V, seven DC-DC, eleven LDO, FBGA187, Terminal Dedicated	U901
39110646	Power Driver, Buck DCDC, CSP16, OMAP platform core driver, Terminal Dedicated	U902
40060351	NAND Flash, 4GB EMMC V4.41, 52 MHz, 1024 KB, 3.3 V, FBGA153 (Pb-free), Terminal Dedicated	U1102
43110064	AUDIO Chip, audio codec, OMAP Solution, PBGA120, Terminal Dedicated	U1201
39070073	-0.3–2.75 V, Battery Gauge, SON, Terminal Dedicated	U1301
39110620	Power Driver, 1.5 A LED flash driver IC, CSP, Terminal Dedicated	U1800
38020065	Analog Switch, one input one output load switch, 1.2 V–4.0 V, 150mohm, WLCSP	U1810, U1897, U1898, U1899
38020062	Analog Switch, 2 channel USB highspeed switch, 3.0–4.3V, Ron(max)<6.5ohm, Ron(typ)<4ohm, 550MHz, UMLP/UQFN	U1900
39070117	Battery Management IC, 4.2V, 18 V, Charger with separate Power Path Control, WCSP, SMT, Terminal Dedicated	U1901
38140020	Semiconductor Sensor, three-axis gyroscope, SMT	U2003
38140064	Semiconductor Sensor, Accelerometer, LGA, 3axis, Terminal Dedicated	U2004

Part Number	Name	Position
38140024	Semiconductor Sensor, E-Compass, WL-CSP (Pb-free), 3axis, Terminal Dedicated	U2005
39110463	Control Chip, LED Control Chip, QFN-RUE, Terminal Dedicated	U2401
40060346	MCP, 1Gb(64Mx16) NAND FLASH, 200MHz, 128KB, 1.8V, 130ball BGA (Pb-free), 256Mb (16Mbx16) DDR, Terminal Dedicated	U2601
43090124	VIDEO Chip, 49 VFBGA, 1.2V/1.8V/3.3V, HDMI&USB 2in1, 1080p/30Hz, Terminal Dedicated	U3101
38020061	Analog Switch, DPDT, 2.7–4.3V, 1900MHz, UMLP16	U3102
36020401	CMOS,2BIT-1.8V/3.3V Level Shifter,GFN8 (Pb-free),1.5ns, 14mA, CMOS, Open drain, Terminal Dedicated	U3103
39110548	LDO, 3.3 V, 2%,0.15 A, SC70-5, Terminal Dedicated	U3104
36020336	LVCMOS, Unbuffer Single Inverter Gate, SC-70,9.0ns, 4.0mA, CMOS, CMOS	U3169
39110566	Switching Regulators, 1–4V, 1.5A, SMT, Terminal Dedicated	U3201, U3259
39210010	Terminal Baseband process IC, Single Band 2.4 GHz WLAN/Bluetooth 2.1/FM Single chip-BCM4330, 2.3–5.5 V, WLBGA133(Pb-free)	U3401
47140049	RF Switch, 0.5–3.0 GHz, SP3T, 0.45 dB, 1.22, 20 dB, TSON, 200–260V(HBM), Terminal Dedicated	U3501
39210004	Terminal Baseband Peripheral IC, GPS Receiver, 2.3–5.5V-WLBGA42 (Pb-free), Terminal Dedicated	U3601
47090053	RF LNA, 1575 MHz, 14 dB min., 1.6 dB max., SOT886, Terminal Dedicated	U3699
39200240	Terminal Baseband process IC, WCDMA/GSM Dual, mode Baseband Processor-XMM6260 (PMB9811),3.05V-4.8V, PG-VF2BGA-221-1	U3801
39200241	Terminal Baseband process IC, WCDMA/GSM Dual, Mode RF Transceiver SMartUE2 (PMB5712),2.5V/1.8V, PG-WFWLB-138-2	U4701
47140093	RF Switch, 824–2170MHz, SP8T ASM, 1.2dB max., 1.6max.,LGA, Terminal Dedicated	U4703
12070027	Temperature Compensated Oscillator, 26MHz, +/-2.5ppm,1.8v-2.9v, +/-2.5ppm, 30degC, 85degC, Terminal Dedicated	U4708

Part Number	Name	Position
39070119	Power Management IC, 2.9–5.1V, PUMP-BUCK DCDC 0-5V, auxiliary charge pump 4 V 10 mA, WLCSP, Terminal Dedicated	U4801
39070116	Power Management IC, 2.9–5.1V, 3bucks(1.2V 3A; 1.8V 3A; 2.85V 3A),1 LDO 2.65V, compatible with infineon transceiver PMB5712, 16-BUMP WLCSP, Terminal Dedicated	U4802
12020125	Crystal, 0.032768 MHz, 12.5pF+/-30ppm, 60/80kohm, 3.2*1.5 SMD, Terminal Dedicate, ELOM, TS16949	X2601, X900
13030052	Ceramic Filter, 2450 MHz, 1.8 dB,20125, Terminal Dedicated	Z3599
13010180	SAW filter, 1575.42 MHz,0.9dB,1.4*1.1 mm, for terminal using only	Z3601, Z3602
51633362	U8650_WIFI_CHIP_GASKET, U8650	U3401
13080147	Duplexer, RX:1805-1880MHz/TX:1920-1980MHz/RX:2110-2170 MHz/TX:1710-1755MHz/RX:2110-2155MHz/TX:1850-1910MHz/RX:1930-1990MHz/TX:824-849MHz/869-894 MHz/TX:880-915MHz/RX:925-960MHz, 3dB.,3.95dB.,47dB, SMT, Terminal Dedicated	U4702
47100455	RF Power Amplifying Module, 1710–1785MHz/1850–1910MHz/1920–1980MHz/824–849MHz/880–915MHz, 35.7dB max., 35dBm, MCM, Terminal Dedicated	U4704

NOTE

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5 Software Upgrade

5.1 Upgrade Preparation

Table 5-1 lists the items to be prepared before a software upgrade.

Table 5-1 Items to be prepared before a software upgrade

Category	Item	Description
Upgrade environment	Computer	Operating system: Windows 2000, Windows XP or Windows 7
	microSD card	With at least 512 MB free space
	Battery	With at least 20% power remaining
Upgrade file	update.app	This version is provided for reference only. Please download the latest version when upgrading the software.
	microSD card upgrade	Normal upgrade
		Forcible upgrade

5.2 microSD Card Upgrade

5.2.1 Normal Upgrade

1. Create a folder named **dload** in the root directory of the microSD card.
2. Copy the upgrade file **update.app** to the **dload** folder.
3. Install the microSD card on the phone and power the phone on.
4. Enter *#*#**2846579**#*#* in dialing mode. Choose **ProjectMenu** > **Upgrade** > **SD card upgrade**, and click **Confirm**.

The upgrade progress is displayed on the LCD.

After the upgrade is completed, the phone automatically restarts.

If the upgrade fails, the phone stays on the upgrade page, and an upgrade failure message is displayed.

5.2.2 Forcible Upgrade

If the phone fails to be powered on, perform the following operations to start a forcible upgrade:

1. Create a folder named **dload** in the root directory of the microSD card.
2. Copy the upgrade file **update.app** to the **dload** folder.
3. Install the microSD card on the phone.

4. In power-off state, press the volume up, volume down, and power keys concurrently for more than 3 seconds.

The phone enters the upgrade state automatically. The upgrade progress is displayed on the LCD.

After the upgrade is completed, the phone automatically restarts.

If the upgrade fails, the phone stays on the upgrade page, and an upgrade failure message is displayed.

5.3 Troubleshooting

Table 5-2 describes the troubleshooting process.

Table 5-2 Troubleshooting process

Failure	Solution
microSD card upgrade failure	1. Check whether the upgrade file is correct. 2. Check whether the upgrade file storage directory is correct. 3. Check whether the upgrade method is correct. 4. Check whether the microSD card functions properly. 5. Perform the upgrade again.

6 Maintenance Tools

Table 6-1 lists the maintenance tools.

Table 6-1 Maintenance tools

	Name: constant-temperature heat gun Usage: to heat components
	Name: soldering iron Usage: to solder components
	Name: DC power supply Usage: to supply DC power
	Name: soldering table Usage: to secure the PCBA
	Name: lead-free solder wire Usage: soldering
	Name: digital multimeter Usage: to measure during repair
	Name: toolkit Usage: to assemble and disassemble terminal products

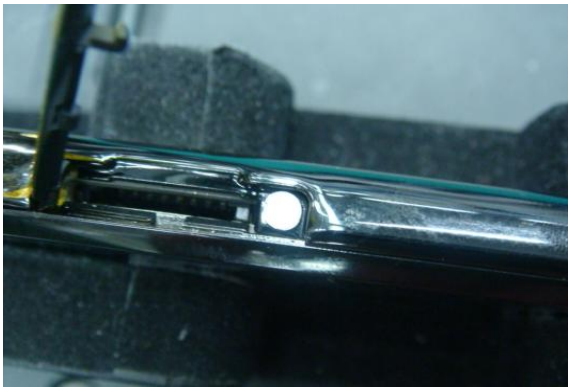
	Name: electric screwdriver Usage: to fasten and remove screws

7 Disassembly Procedure

7.1 Disassembly Procedure

1. Remove the microSD card slot holder, and remove the Philips screws (the screws are covered by a white anti-dismantle label).

Figure 7-1 microSD card slot holder



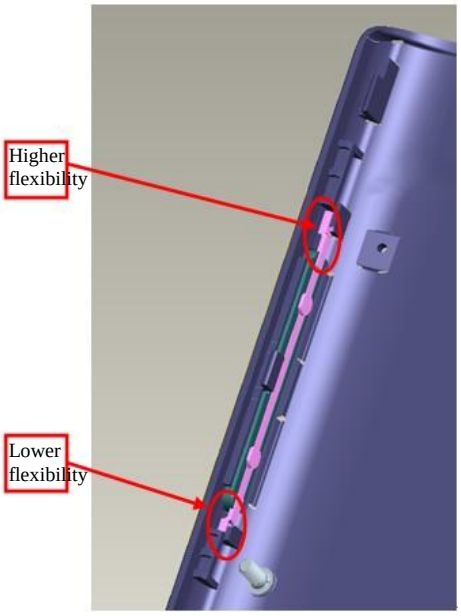
2. Remove the battery cover.
   (1) Stick a crowbar into the gaps at the bottom corners respectively, and pry outwards to remove the two buckles.
   (2) Remove the three bottom female buckles.
   (3) Remove the top three buckles.

Figure 7-2 Removing the battery cover

NOTE

When you reinstall the volume keys, pay attention to the direction where the volume key should be placed. Place the key of a higher flexibility at the upper position. After the two keys are installed, check whether they are installed at the correct position without interference with other components around them.

Figure 7-3 Reinstalling the volume keys



3. Remove the main antenna and sub board.

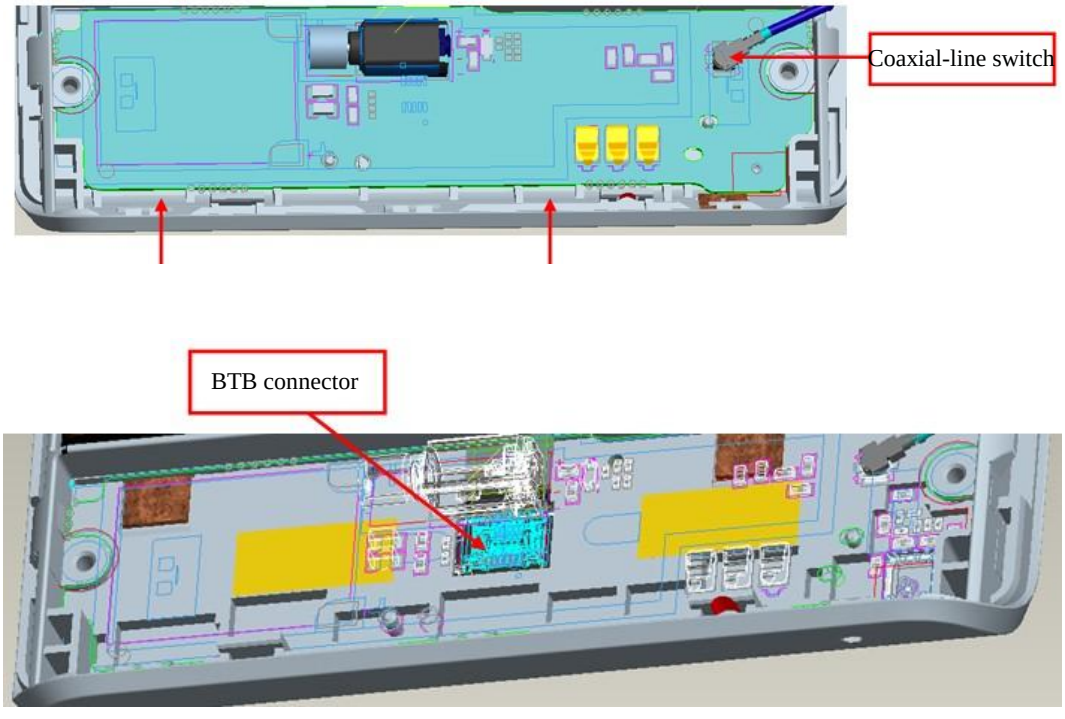
   (1) Remove the two Philips screws, and take out the main antenna support.

Figure 7-4 Removing the two Philips screws

   (2) Hold the housing and sub board with your left hand, and remove the coaxial-line switch using tweezers with your right hand.

   Stick a crowbar into the spacing, as shown in the following figure, to pry upwards to remove the sub board. Disconnect the BTB connector.

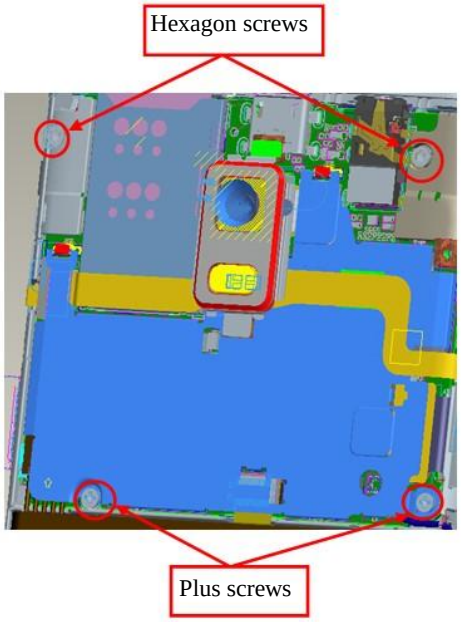
Figure 7-5 Removing the sub board



4. Remove the main shielding cover and Flash_FPC.

   (1) Remove the four screws.

Figure 7-6 Removing the four screws



(2) Lift the volume key FPC and power key FPC to the extent that they are separated from the magnesium alloy.

NOTE

When you reinstall the FPCs, check whether the adhesive backed is damaged; if it is, change the adhesive, and remove the residues from the magnesium alloy.

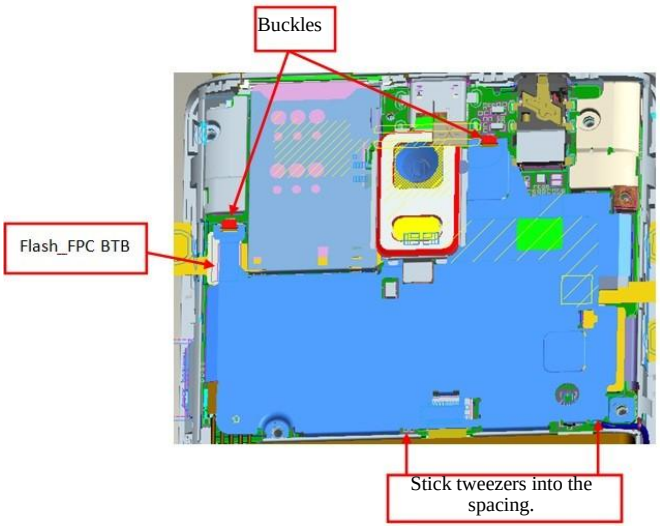
Figure 7-7 Lifting the volume key FPC and power key FPC

(3) Remove the shielding cover.

Stick tweezers into the spacing, as shown in the following figure, to pry upwards. Take care not to damage the connector under the shielding cover or deform the shielding cover. Remove the shielding cover from the two buckles.

(4) Disconnect the BTB connector from the Flash_FPC using tweezers, and remove the FPC.

Figure 7-8 Removing the shielding cover



5. Remove the main board.

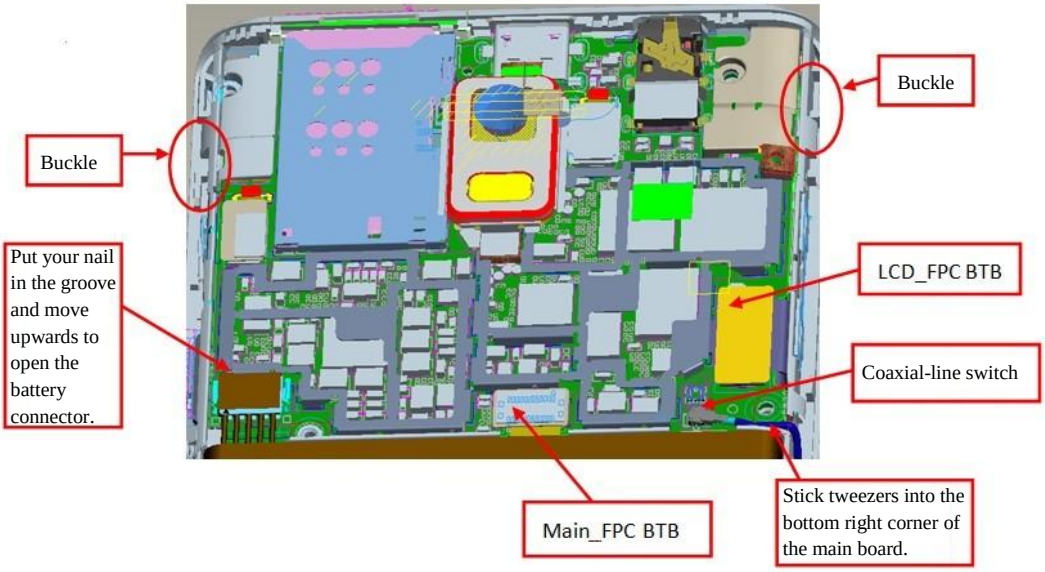
   (1) Disconnect the BTS connector between the LCD_FPC and Main_FPC.

   (2) Turn off the coaxial-line switch using tweezers.

   (3) Put your nail in the groove and move upwards to open the battery connector.

   (4) Stick tweezers into the bottom right corner of the main board, and pry upwards. Apply a proper force to avoid damage to the two buckles on the left and right.

Figure 7-9 Removing the main board



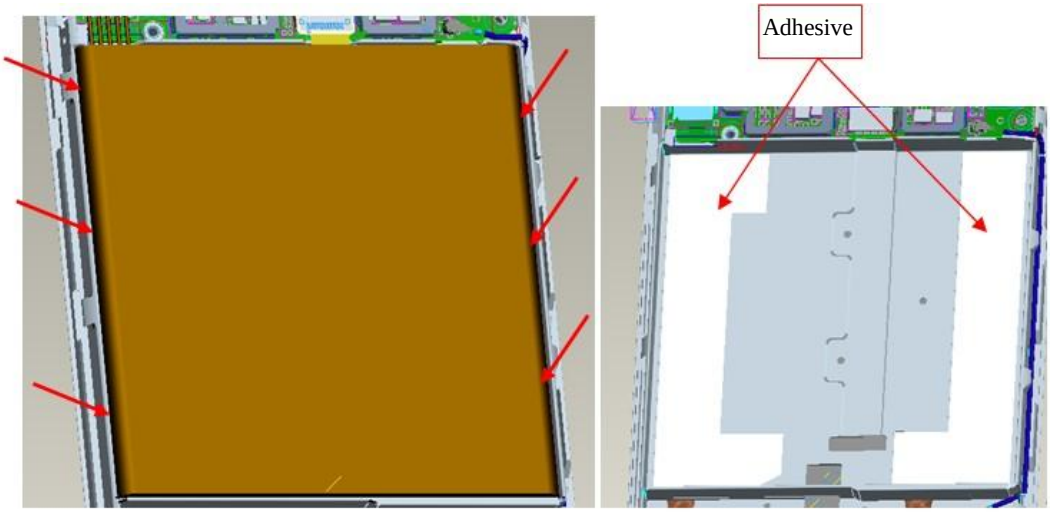
6. Remove the battery.

   (1) Stick an obtuse nonmetallic tool into the spacing at both sides of the battery, and pry upwards.

NOTE

The external layer of the battery is aluminum, and there are two pieces of adhesive between the battery and the front cover. You must take care not to pierce the aluminum layer.

Figure 7-10 Removing the battery



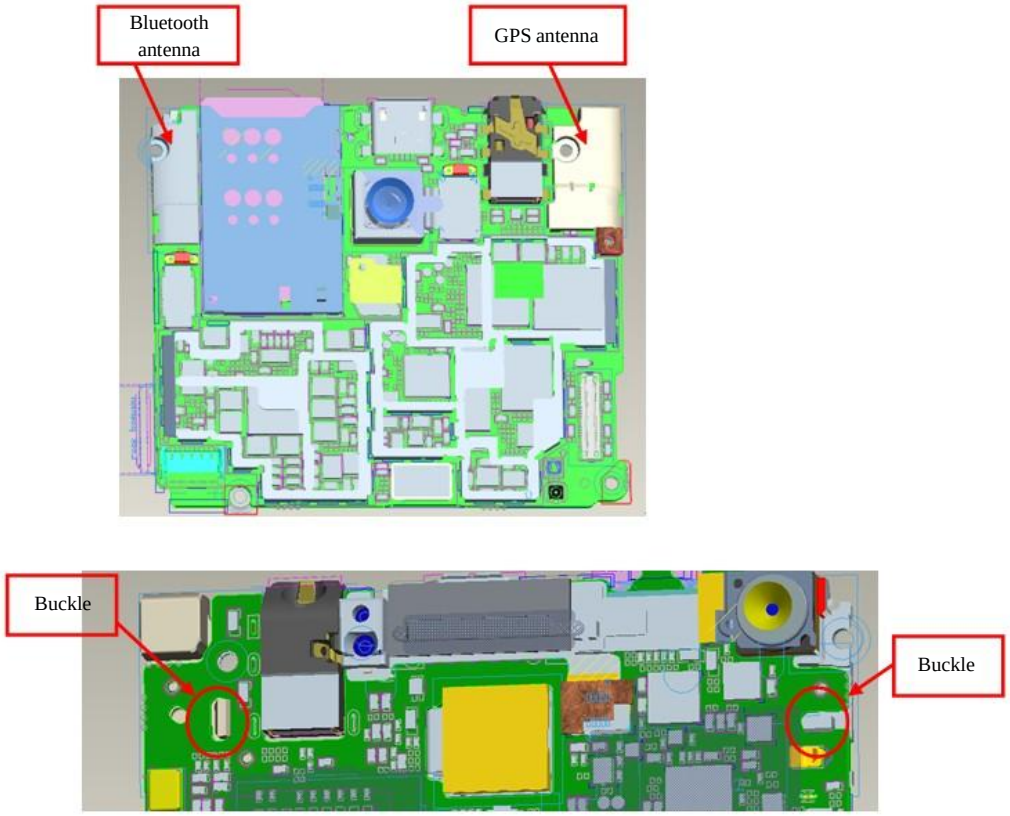
7. Remove the components from the main board.

   (1) Remove the Bluetooth and GPS antennas.

NOTE

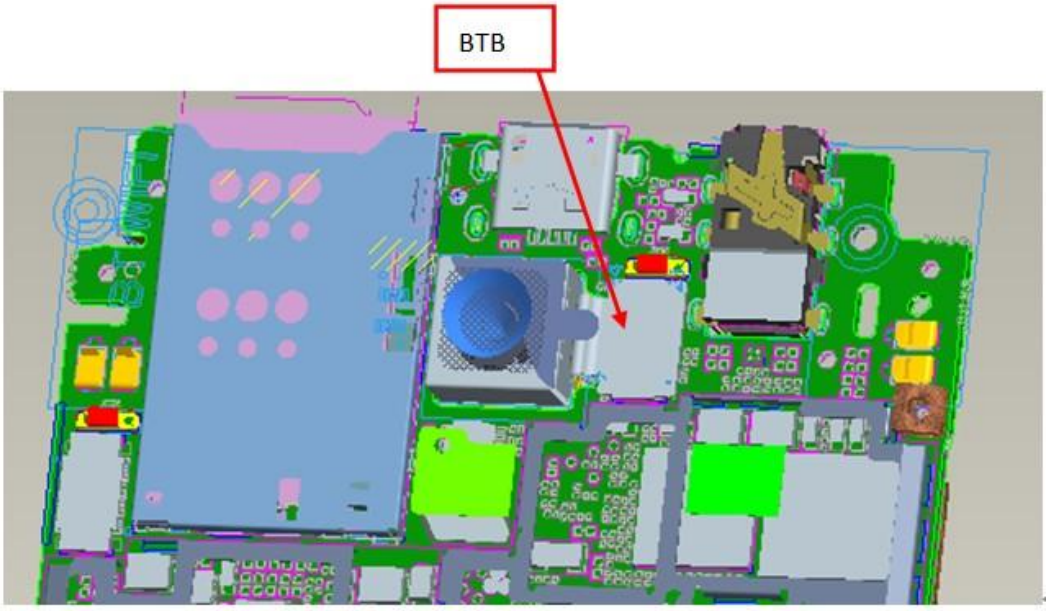
There is a buckle on the back of each antenna. Take care not to break the buckle.

Figure 7-11 Removing the components from the main board



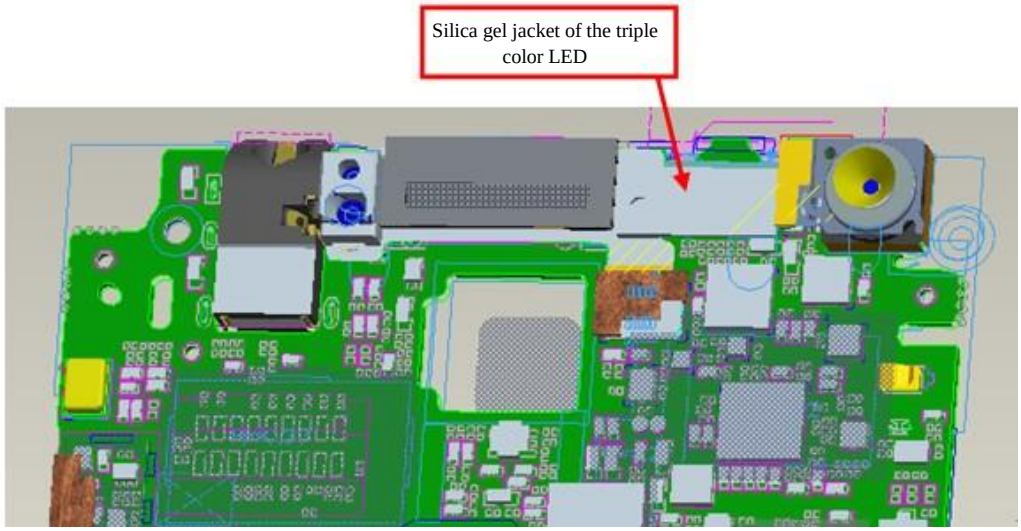
(2) Remove the rear camera. Open the BTB connector, and remove the camera from the front surface.

Figure 7-12 Removing the rear camera



(3) Remove the front camera. Remove the silica gel jacket from the triple color LED, disconnect the BTB connector, and remove the front camera.

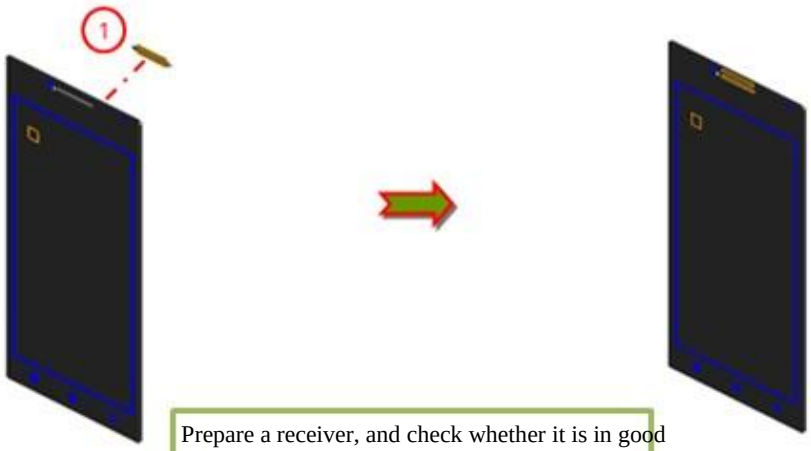
Figure 7-13 Removing the front camera



8. The touchscreen and LCD are glued to the front cover, and cannot be disassembled.

8 Assembly Procedure

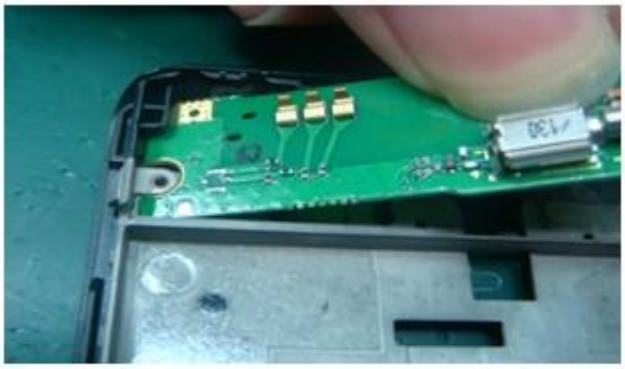
8.1 Installing the Air Filter



Prepare a receiver, and check whether it is in good condition. Place the receiver on the correct position on the touchscreen, and press it for 3 seconds.

8.2 Installing the Sub Board to the Front Cover

Step 1 Paste a piece of adhesive on the back of the sub board, and tear off the liner.

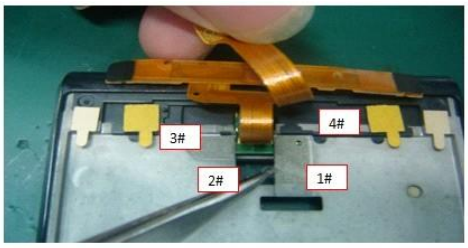


Step 2 Place one end of the sub board under the hook.

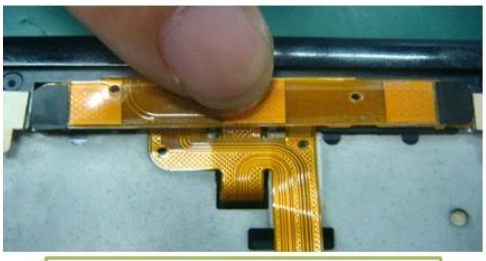
Step 3 Install the sub board to the correct position where both ends are hooked tightly.

8.3 Installing the Touch Key FPC to the Front Cover

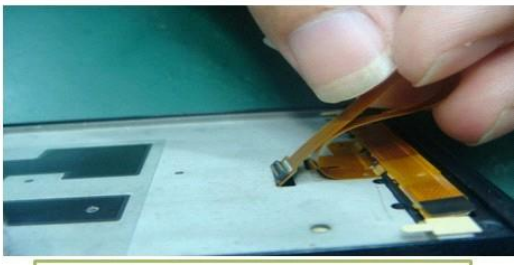
Step 1 Place the touch key FPC on the sub board.



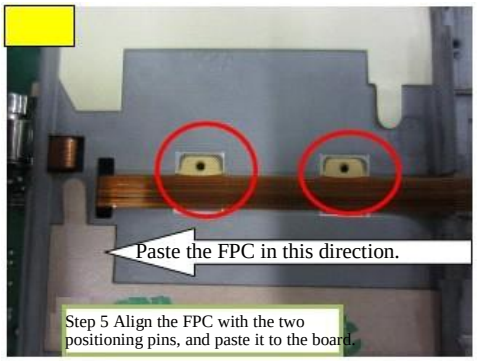
Step 2 Use tweezers to tear off the four liners in the sequence as shown in the figure above.



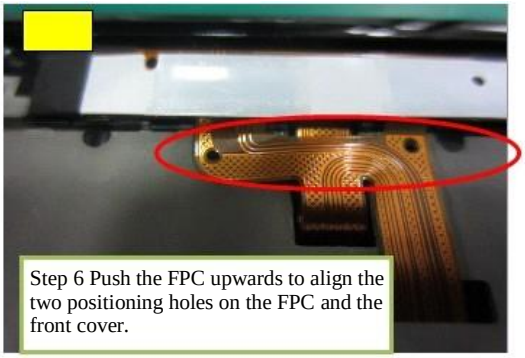
Step 3 Paste the FPC to the board by aligning it with the two positioning pins on the front cover.



Step 4 Route the FPC through the hole, tear off the two liners, and paste the FPC to the correct position.

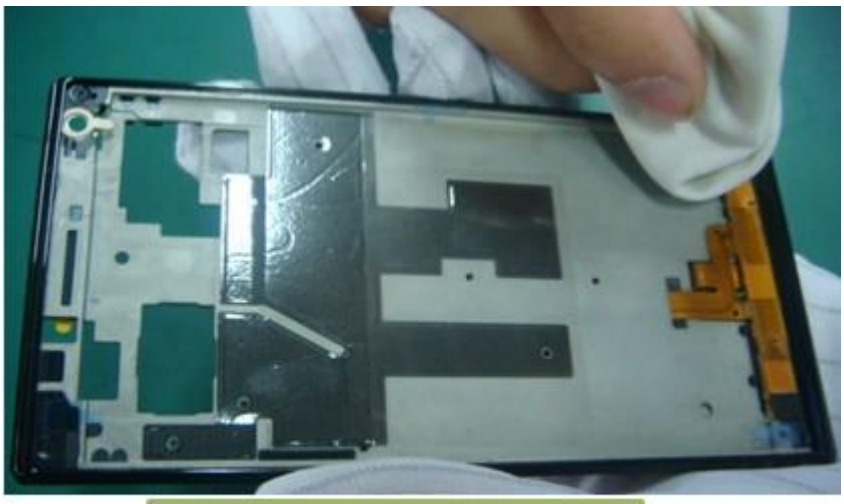


Step 5 Align the FPC with the two positioning pins, and paste it to the board.

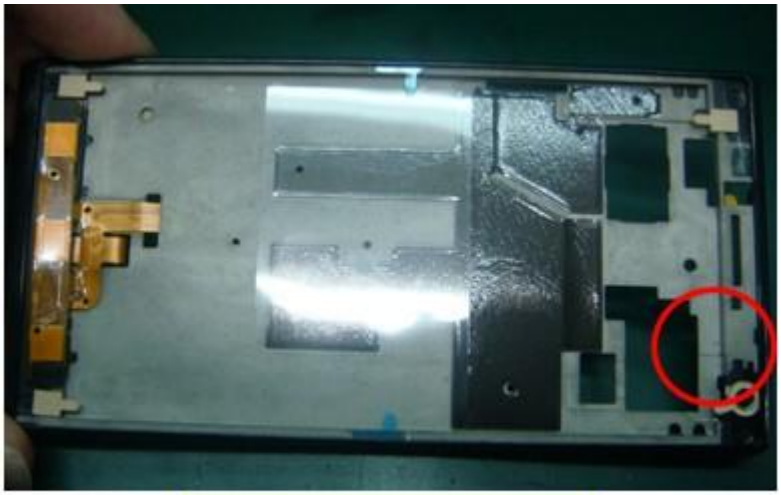


Step 6 Push the FPC upwards to align the two positioning holes on the FPC and the front cover.

8.4 Wiping the Front Cover



Step 1 Wipe the areas to be glued using a piece of dust-free cloth with some absolute alcohol.



Step 2 Tear off the liner.

8.5 Gluing Touchscreen Components

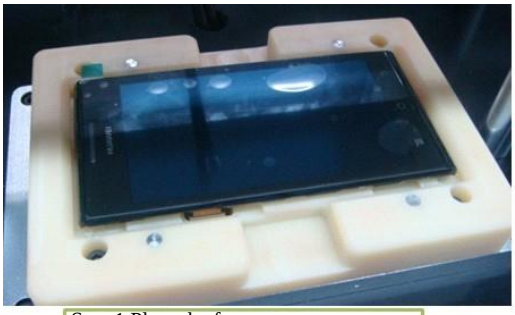
Step 1 Place the front cover components on the glue dispenser.

Step 2 Power on the glue dispenser, and dispense glues on the components.

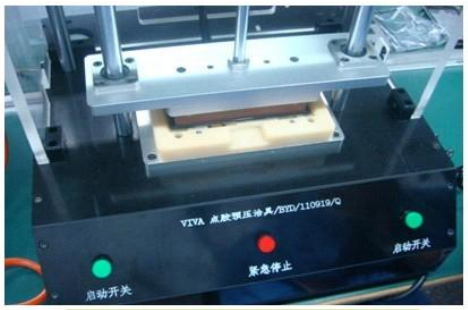
Step 3 Route the FPC through the hole on the front cover. Note: Do not glue the TP.

Step 4 Align the front end of the TP with one edge of the front cover, and slide the TP slowly downwards to install it to the correct position.

8.6 Pre-Pressing Touchscreen Components



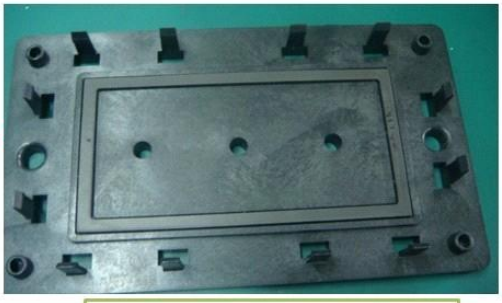
Step 1 Place the front cover components on the pre-pressing machine.



Step 2 Power on the pre-pressing machine, and press the components.

8.7 Packing Touchscreen Components

Step 1 Place the front cover components on the packing pressure machine.

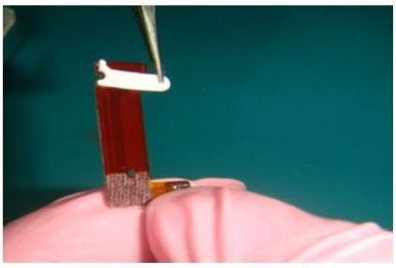


Step 2 Take the top cover.

Step 3 Place the top cover squarely on the packing pressure machine, and press the top cover tightly. The duration of packing pressure is two hours.

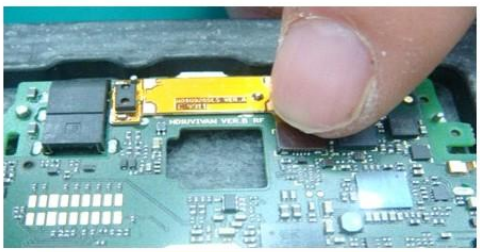
8.8 Installing the REC-FPC to the Main Board

Step 1 Place the main board on the jig.



Step 2 Tear off the two liners.

Step 3 Paste the REC-FPC to the correct position by aligning it with the two positioning pins.



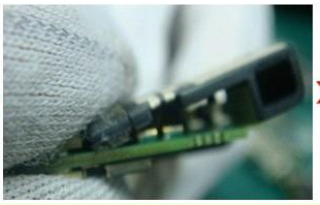
Step 4 Connect the two connectors on the REC-FPC and the main board.

8.9 Installing Bluetooth and GPS Supports

Step 1 Prepare a Bluetooth support, and check whether it is in good condition.

Step 2 Align the Bluetooth support with the positioning groove on the main board, and install it to the correct position.

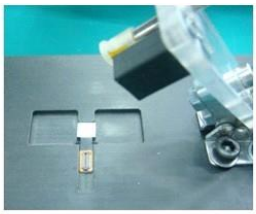
Step 3 Prepare a GPS support, and check whether it is in good condition.



Step 4 Align the GPS support with the positioning groove on the main board, and install it to the correct position.

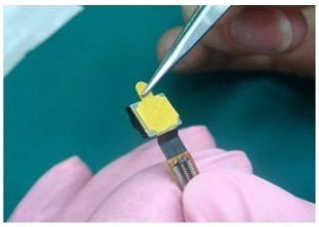
Step 5 Check whether the two supports are installed correctly.

8.10 Installing the Front Camera to the Main Board



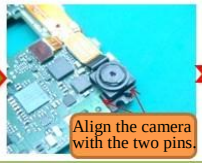
Step 1 Place a front camera on the anticipation bender.

Step 2 Bend the front camera FPC.



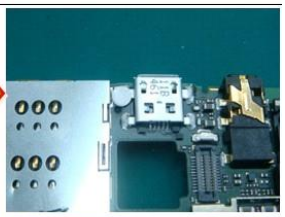
Step 3 Paste a piece of adhesive to the front camera, and tear off the liner.

Step 4 Connect the two connectors on the front camera and the main board.



Step 5 Install the front camera to the correct position by aligning it with the two antenna supporting pins.

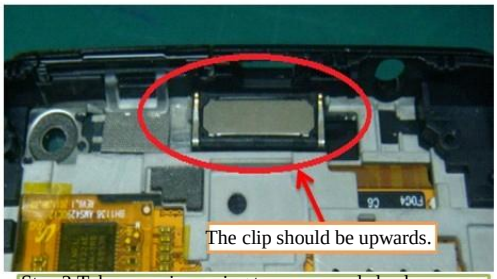
Step 6 Install an REC FPC seal ring.



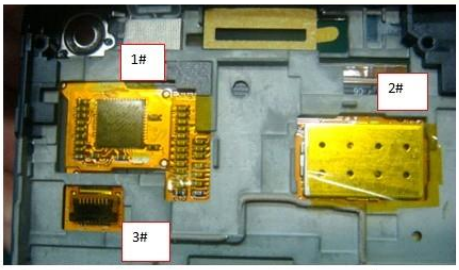
Step 7 Paste a waterproof strip.

8.11 Installing the Receiver and Pasting a Protective Film

Step 1 Prepare a receiver, and check whether it is in good condition. Use tweezers to tear off the yellow liner.

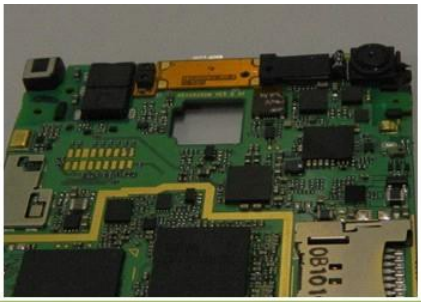


Step 2 Take a receiver using tweezers, and check whether the clip is free of deformation or dirt. Install the receiver with the clip upwards, and slightly press it for three seconds.



Step 3 Take three yellow protective films using tweezers, and paste them to the three positions as shown in the figure above.

8.12 Installing the Main Board to the Front Cover



Step 1 Check whether the main board is in good condition. Install the sensor light rubber sleeve to the main board with the larger hole downwards.

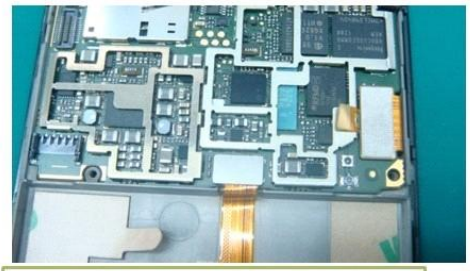
Step 2 Align the main board with the BOSS side first. Hold the two antenna supports of GPS and Bluetooth with your hands to install the main board to the front cover.

Step 3 Press the antenna support at your left hand side first, and then right hand side. Install the main board to the front cover.

Keep the camera close to the two edges for positioning.

8.13 Installing the Rear Camera to the Front Cover

Step 1 Run the electric screwdriver to screw the GPS and Bluetooth supports with hex head screws.

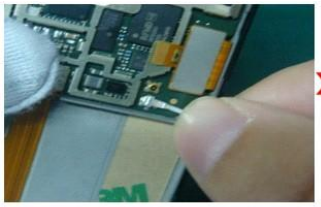


Step 2 Install the two connectors of the Touch-FPC and TP to the main board.

Step 3 Take a rear camera, and place it into the correct position on the main board.

Step 4 Press the camera body with your left hand, and push slightly the camera connector with your right hand to be aligned with and connected to the main board connector.

8.14 Installing the Coaxial Line to the Front Cover



Step 1 Take a piece of coaxial line. Secure one end tightly to a port on the main board.

Step 2 Secure the other end tightly to another port on the main board.

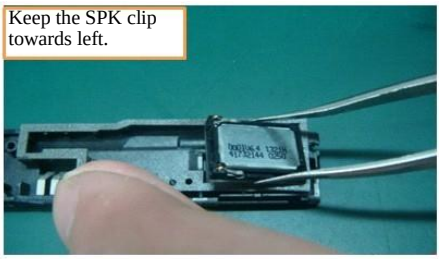
Step 3 Squeeze the coaxial line into the groove in a direction away from the port.

Step 4 Wait until the entire coaxial line is squeezed into the groove.

Step 5 The positioned coaxial line is shown in the figure above.

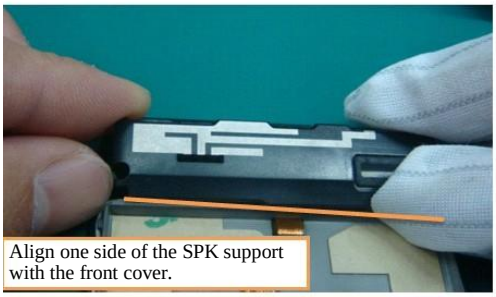
8.15 Installing and Screwing the SPK Support

Step 1 Take an antenna support, and check whether it is in good condition. Tear off the liner on the back of the support.



Keep the SPK clip towards left.

Step 2 Align the right end of the SPK with the support, and then press it into the support.

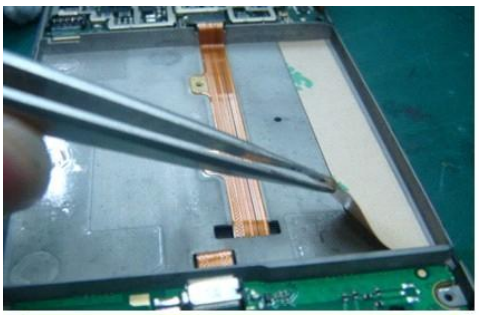


Align one side of the SPK support with the front cover.

Step 3 Install the SPK support into the front cover as shown in the figure above.

Step 4 Run the electric screwdriver to screw the SPK support with two square head screws.

8.16 Installing and Pressing the Battery



Step 1 Use tweezers to tear off the two liners.

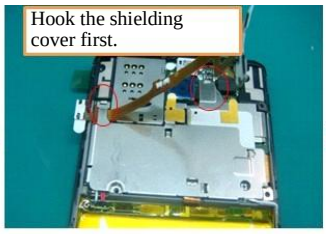
Step 2 Align the battery with the interface on the main board, and install the battery to the correct position.

Step 3 Press the cable with your left hand. Install the battery and the TP connector to the main board.

Step 4 Place the main board having a battery installed on the lamination jig. Power on the laminating machine.

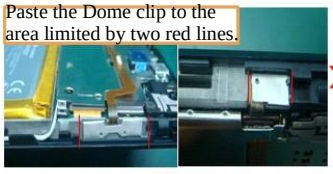
8.17 Installing and Screwing the Shielding Cover

Step 1 Connect the two connectors on the Flash FPC and main board.

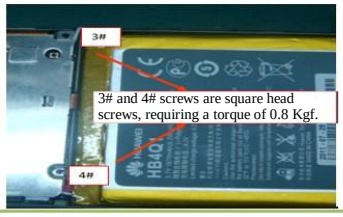


Step 2 Hook the shielding cover to the main board, and then install the shielding cover to the correct position.

Step 3 Use tweezers to tear off the two liners on the back of the shielding cover, and then paste the Flash FPC to the shielding cover by aligning it with the positioning hole.



Step 4 Tear off the liner, and install the FPC key to the correct position.



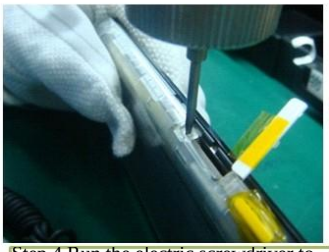
Step 5 Run the electric screwdriver to screw the shielding cover with 3# and 4# screws.

8.18 Installing and Screwing the Rear Cover

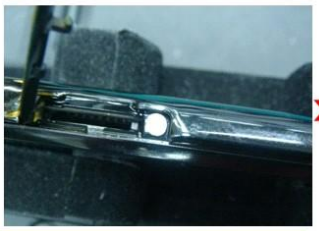
Step 1 Use tweezers to tear off the camera protective film.

Step 2 Take the rear cover, and open the volume key.

Step 3 Align one side of the rear cover with the main board, and then install it to the correct position.



Step 4 Run the electric screwdriver to screw the rear cover with square head screws.



Step 5 Paste anti-dismantle labels to the screws.

Step 6 Tear off the liner from the rear camera. Paste lens on it, and press it for three seconds.

9 Troubleshooting Common Problems

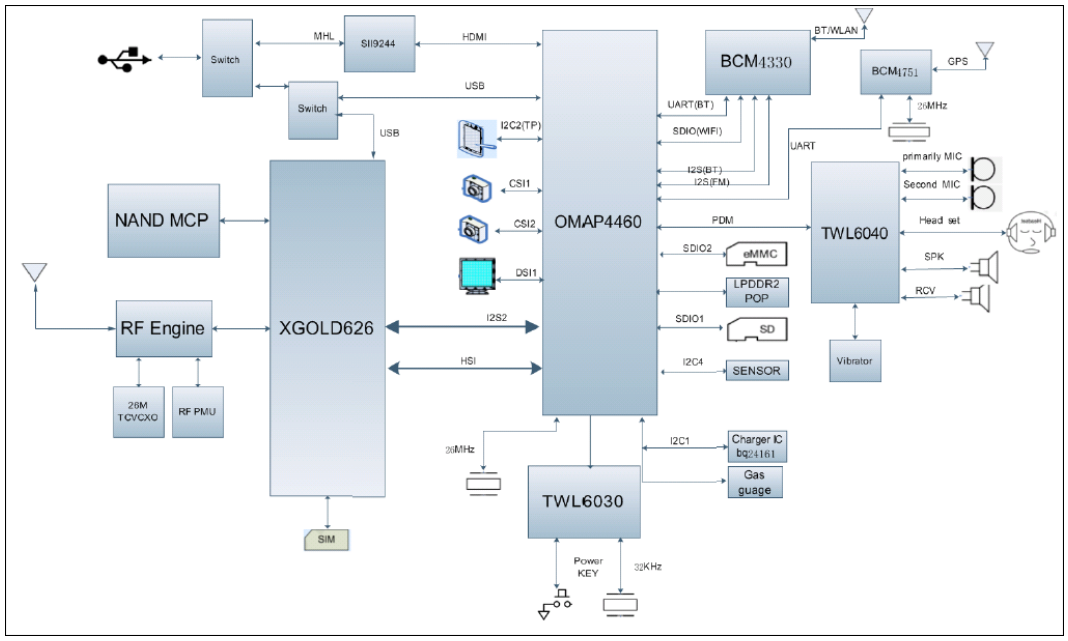
Before performing maintenance and repair, ensure that the failure is not caused by environmental factors and incorrect phone settings.

It is recommended that you restore the phone to the factory defaults.

9.1 Architecture Introduction

Figure 9-1 shows the schematic diagram of the circuit of the U9200.

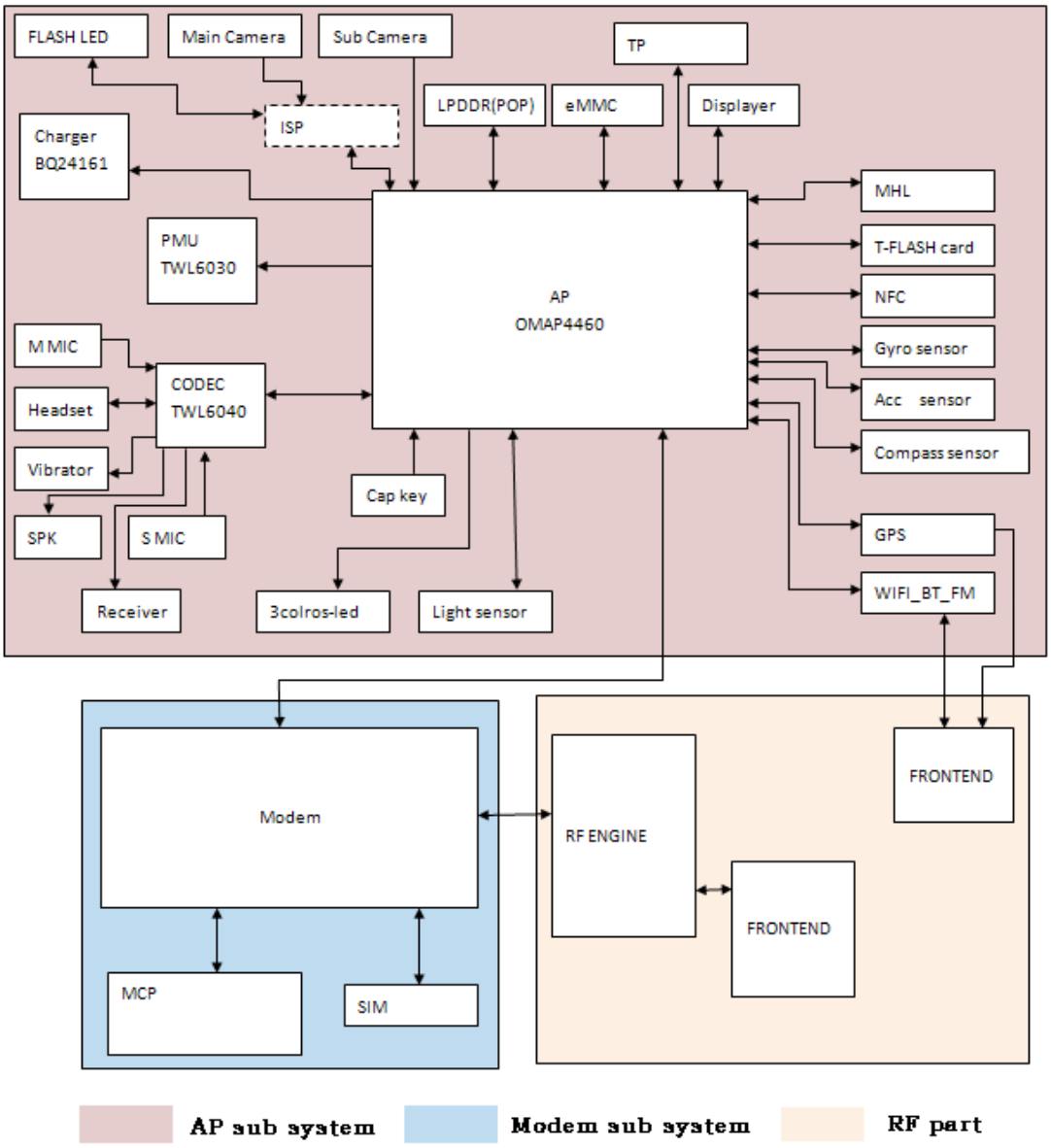
Figure 9-1 Schematic diagram of the circuit of the U9200



The U9200 is Huawei's first smartphone supporting the combination of application processor (AP) and cellular modem. The U9200, based on the TI OMAP4 platform, is a bar-type smartphone, with two ARM Cortex-A9 1.5 GB cores and two LPDDR2 ports, supporting dual channels to improve system performance. The hardware architecture is comprised of three parts: AP, modem, and RF module. OMAP4460 (AP) is a signal input/output unit, providing ports to the keypad, LCD, microSD card, Bluetooth, and camera; TWL6040 is an audio management chip, supporting encoding and decoding audio signals; XGOLD626 is a modem, providing RF interfaces; RF Engine is an RF transceiver; BCM4330 is a Bluetooth/Wi-Fi/FM transceiver chip; BCM4751 is a GPS receiver chip. The U9200 consists of boards, built-in battery, and mechanical parts: Boards include the main board, upper FPC (HD1U9200LS), lower FPC (HD1U9200L), LCD module, 1 M HD/8 M camera, and motor/MIC/SPK/REC; mechanical parts include Touch Lens, shell B, shell C, microphone sound cavity, main antenna, and GPS/Wi-Fi/Bluetooth antennas.

Figure 9-2 shows the block diagram of the U9200.

Figure 9-2 Block diagram of the U9200



The main board is divided according to logical function into the following four subsystems: baseband (including the AP and modem BB), RF, power supply, and user interface. Table 9-1 describes the modules and units subordinated to each subsystem and their functions.

Table 9-1 Main board architecture

Subsystem	Module	Unit	Function
Baseband subsystem	OMAP4460	Application subsystem	45 nm, dual ARM9 processors, microSD card, UART/USIM, I2C, I2S, HSI, MIPI, GPIO, HDMI, Smart Reflex 2, and clock supported.

Subsystem	Module	Unit	Function
		User interface processing unit	Provides an interface to the camera, PCM, broadband CODEC, RF, HKADC, LCD, microSD card, USB, UART, USIM card, HSI, MIPI, GPIO, JTAG/ETM, and keypad.
		Multimedia and game engine	MPEG/GPEG hardware engine, game engine, JAVA accelerator, and MP3/MMS/MIDI
	X-GOLD626	Modem BB	40 nm digital baseband module, system-in-package (SIP) of low power consumption, WCDMA, GPS, and GSM signal modulating and demodulating. Its subsystems include ARM processor, modem DSP, interrupt controller, and power and sleep controller.
		Modem PMU	65 nm, supply power to MODEM BB, reset function, two-line SMPS, eight-line LDO.
		Modem memory	MCP (1 GB + 256 MB)
	EMMC	Features, power consumption, and file system	Programs and NV items, 8 GB/4 GB
	DDR RAM	Power consumption	RAM for program running, 1 GB
RF subsystem	WCDMA and GSM/DCS transceiver	Smartti-UE2	WCDMA RF transceiver, comprised of an RFMD chip, PMU, and peripheral circuits.
	GPS	GPS receiver	GPS receiver, comprised of Broadcom BCM4751 and peripheral circuits.
	Bluetooth interface	Bluetooth module	Bluetooth baseband and RF transceiver, comprised of Broadcom BCM4330 Bluetooth and peripheral circuits.
	Wi-Fi interface	Wi-Fi module	Wi-Fi baseband and RF transceiver, comprised of Broadcom BCM4330 Wi-Fi and peripheral circuits.
	Crystal oscillator and frequency synthesizer	26 M TCVCXO and control circuit	Provides high precision 26 MHz local clock.

Subsystem	Module	Unit	Function
	Antenna	External antenna, internal interface, and antenna protection	The U9200 provides a built-in antenna supporting WCDMA at high and low frequency bands. The U9200 provides a main antenna and Wi-Fi/Bluetooth/GPS antennas.
User interface subsystem	UART connector		The UART1 port is connected to MODEM, UART2 connected to BT&GPS, UART3 connected to commissioning equipment, UART4 connected to audio noise reduction chip ES305.
	USB connector	Driver, protective circuit, and output interface	Indicates the USB peripheral circuit, protective circuit, and interface connector in the AP, MODEM, and MHL subsystems. The module is also the main data channel of the engineering sample, which is used for device debugging and testing.
	USIM connector	Power supply, protective circuit, and USIM socket	USIM card holder and the corresponding link circuit.
	Keypad and backlight	Keypad drive circuit, external keypad, LED backlight control circuit	The volume keys are monitored with the interrupted monitoring method through GPIO. When users press the volume key, the two top view LED backlights are on.
	Color LCD and backlight	LCD driver, interface mode, and backlight control	Main display, 16000000 colors.
	T-FLASH card	Power supply, protective circuit, and connector	TFLASH card connector and related interface circuit
	Speaker	Drive mode, connection mode, and speaker-related components	The speaker is used to play chord ringing when a call is set up, whose power is up to 500 MW. The good frequency response enables it to play 20 Hz – 20 kHz music. It can also serve as the mono speaker for MP3.
	receiver	Drive mode, connection mode, and receiver-related components	Earpiece during a call with a power lower than 30 MW.

Subsystem	Module	Unit	Function
	MIC	Interface circuit, connection mode, and MIC-related components	Embedded two silicon microphones in favor of noise reduction.
	Earphone	Earphone, headset interface circuit, MIC interface circuit	The phone provides headset interface for call output or MP3 output while the MIC is set on the earphone line to transmit the sound to the phone.
	Vibration motor interface	Drive mode, connection mode, and motor	The vibration motor provides vibration prompt when a call is set up.
	Acceleration sensor	I2C interface controller	The acceleration sensor is an auxiliary module of the game engine.
	Gyroscope	I2C interface controller	Tri-axis angular rate sensor
	Compass	I2C interface controller	Geomagnetic sensor
	Proximity sensor	I2C interface controller	Ambient light sensor and proximity sensor
Power supply subsystem	Internal backup battery	Li-ion battery and interface	The nominal output of Li-ion battery is 3.7 V/1670 mAh with the number of charging/discharging over 500. (The Li-ion battery must meet the safety requirements in GB18287.)
	External primary power supply (travel charger)	Adapter and interface	The charger with 90–240 V, 45–55 Hz AC input can be used in China, Europe, America, and Australia. The output voltage of the charger is 5±0.25 V. The charger must pass CE (Europe), 3C (China), FCC (North America), A-tick (Australia) authentication. The charger can charge and supply power for the phone simultaneously.
	Power distribution network and power management function	Power distribution network	Including each filter network and the corresponding cabling of power.
		Backup battery management, charging circuit, charging mode, over charge protection	This module provides charging/discharging management and over charge/discharge protection, and charges the capacitor supplying current to the RTC.

Subsystem	Module	Unit	Function
		Power management of circuits (power-on and power-off analysis)	LDO provides flexible methods for power management.According to the service status, protocol or the requirement of power saving, the board software manages the power of circuits to reduce power consumption and provides three-line 32 kHz clock.
	TWL6030 enhanced function	RTC	32.768 kHz sleep clock is used for embedded RTC circuit to provide accurate time.
		HKADC	17-line 10 bit analog signal input supported.
		Double I2C interfaces	I2C controller and SMART REFLEX I2C.
		UVLO	Low voltage power-off function. If the input voltage is lower than a threshold for a specified period, the phone is powered off.
		WDT reset	Supports overflow reset of WDT counter
		Over-temperature protection	If the junction temperature is over 150 ℃, the phone is powered off automatically.
		Internal drive circuit	There are four LED drivers, one vibrator driver and one speaker driver.
		Interrupt management	There is an embedded interrupt manager to process the related interrupt signals.
		USB driver	There is an embedded OTG USB driver supporting USB 2.0 HS. The interface is of /B type. The software does not support OTG function now.

For details on the conceptual diagram and component layout for maintenance, see the following compressed files.


HD1U9200MG.rar


bottom.rar


top.rar

9.2 Power-On Failure

If a phone cannot be powered on, you should inspect the phone to locate the fault. Possible causes of power-on failure are listed as follows:

1. The battery is damaged because of unknown reasons, resulting in no output voltage, poor contact between connectors, or low output voltage, in which case the phone enters a low power consumption state once being powered on.
2. The main board is faulty.
3. The LCD is damaged which seems that the phone cannot be powered on.
4. The FPC of the power key is faulty, resulting in no response when you press the power key.

Detailed fault location methods are described as follows:

1. Press the power key, and listen whether the motor rotates. If the motor rotates, the LCD is damaged. Change the LCD, and check whether the phone can be powered on.
2. If the motor does not rotate, connect the phone to a USB charger, and if the phone enters the charging state, the FPC of the power key or the battery is faulty.
3. If the phone does not enter the charging state, the main board is faulty or the battery is faulty. In this case, disassemble the phone to inspect whether the battery and the power key are in good condition. If they are, the power-on failure is caused by a faulty main board.

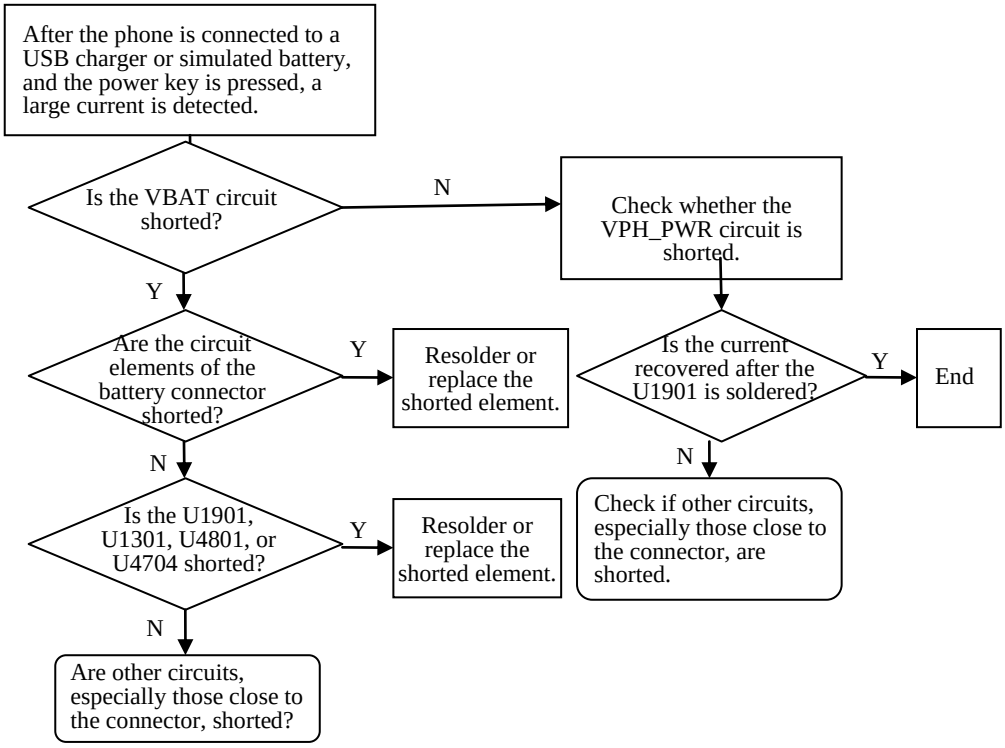
To locate the fault on the main board, connect the phone to a USB charger, and check the current.

There are three scenarios: large current, low current, and no current. The following sections provide detailed analysis on the three scenarios.

9.2.1 Large Current (DC Power Supply)

Large current is usually caused by short circuit. The current reaches 500 mA or above (the over-current protection value of a USB charger) when using DC power supply. For U9200, large current is usually caused by ground short circuit of VBAT and VPH_PWR.

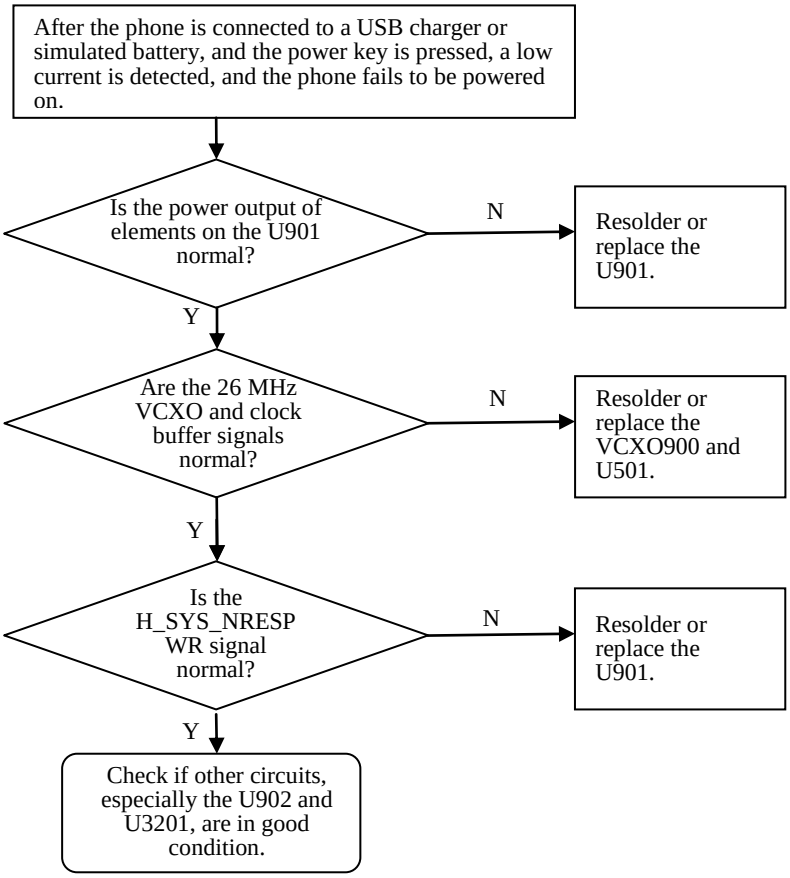
Figure 9-3 Large current check process



9.2.2 Low Current (DC Power Supply)

Low current is usually caused by short circuit on the PM chip or system startup failure, which is due to a faulty main chip or memory chip. The low current ranges from 20 mA to several hundred mA.

Figure 9-4 Low current check process



Common configurations of the element power on the U901 are as follows:

VANA=2.1V, VIO_1V8=1.8V, VDD_VMEM=1.2V, VDD_2V1=2.1V, VDD_1V2=1.2V, VDD_VCXIO=1.8V, VDD_CORE1=0.93V, VDD_CORE2=0.93V, VDAC_1V8=1.8V, VAXU1_2V85=2.85V, VDD_CORE3=1.2V, VAUX2_2V8=2.8V, VAUX3_2V8=2.8V, VDD_MMC1=2.8V, VDD_VSIM=1.8/3.0V, VPP_1V8=1.8V, VDD_RTC=1.8V, and USB_3V3=3.3V

Where, the VDD_CORE3, VAUX2_2V8, VAUX3_2V8, VDD_MMC1, VDD_VSIM, VPP_1V8, USB_3V3 should meet the application mechanism, that is, the power supply corresponding to an application should be enabled/disabled according to the state of the application.

If the fault still cannot be located after you perform the preceding operations, start the OmapFlash_mDDRtest provided by TI to check whether the DDR2 is normal. Ensure that the PC can identify the port before you use the tool, because the PC is connected to the U9200 through a USB cable.

The OmapFlash_mDDRtest is downloaded at the following website:

https://sps01.itg.ti.com/sites/OMAP_PBU/System_Engineering/HWRP/HWREF/tools/OMAPFlash/Software/Forms/AllItems.aspx?RootFolder=%2fsites%2fOMAP_PBU%2fSystem_Engineering%2fHWRP%2fHWREF%2ftools%2fOMAPFlash%2fSoftware%2fOfficial%20Builds&FolderCTID=&View={58145661-3285-4934-B1E0-14D122A54E89}

To run the OmapFlash_mDDRtest, perform the following instructions:

2. After the tool is installed, enter **CMD** in the start interface to open the editor.
3. Set the directory to which the tool is installed, such as, cd "C:\Program Files\Texas Instruments\OMAPFlash>".
4. Enter **OMAPFlash.exe -v -2 -omap 4 -p SEVM_MDDR_ELPIDA_8G -t 600 command mtquick 80000000 9FFFFFFC** to check whether DDR2 channel 1 is normal.
5. Enter **OMAPFlash.exe -v -2 -omap 4 -p SEVM_MDDR_ELPIDA_8G -t 600 command mtquick A0000000 BFFFFFFC** to check whether DDR2 channel 2 is normal.
6. If the DDR2 is normal, the interface displays **No Problem Found**; otherwise, it displays **Operation Failed**.

For details about how to use the OmapFlash_mDDRtest, see the following compressed file.

OmapFlash_mDDRtest.rar

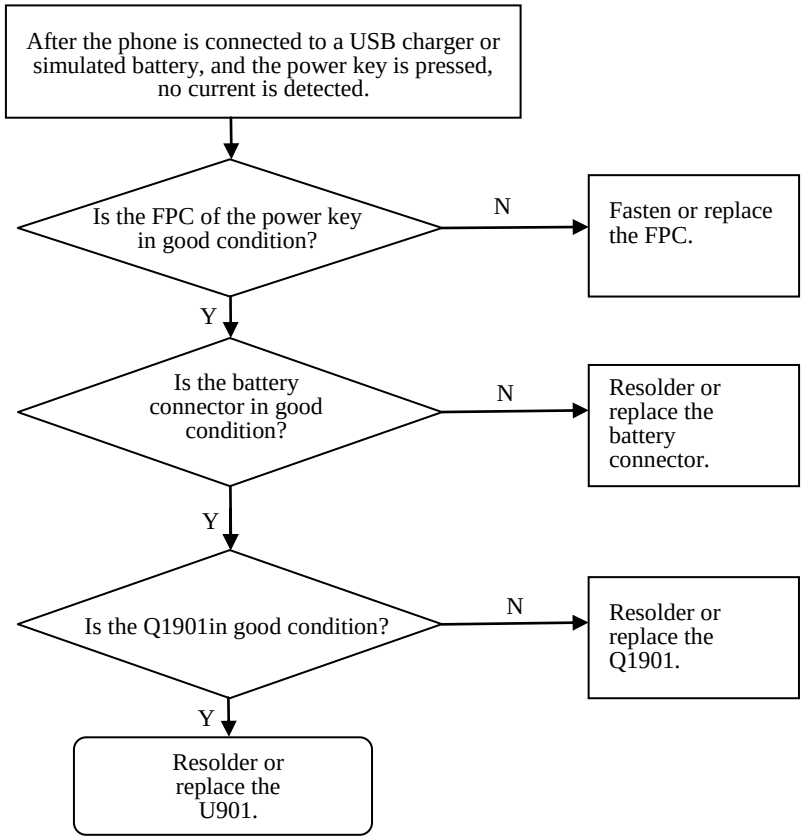
If the DDR2 is faulty, resolder or replace the DDR2.

If the DDR2 is in good condition, resolder or replace the AP (U301).

9.2.3 No Current (DC Power Supply)

No current is usually caused by power supply channel absence, poor soldering, or power key circuit faults.

Figure 9-5 No current check process



9.3 Charging Failure

The BQ24161 chip is specifically used for charge control. If the U9200 can operate normally but being charged, check the BQ24161 chip, and replace it with the U1901. If the phone still fails to be charged, the circuit monitoring the battery charge level may fail. In this case, replace the U1301.

Figure 9-6 Schematic diagram of the charging circuit

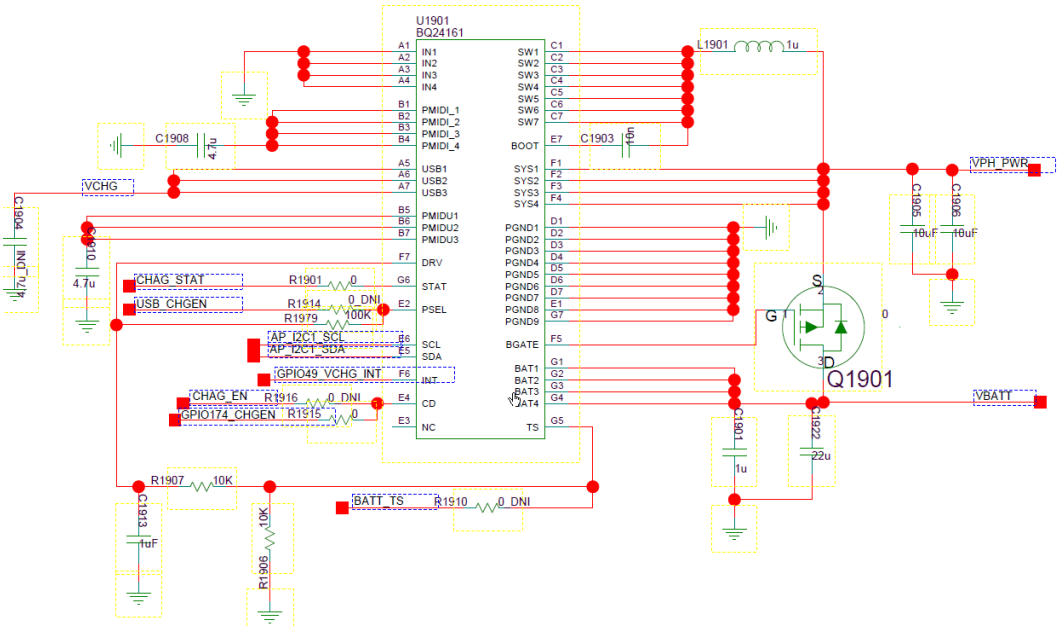
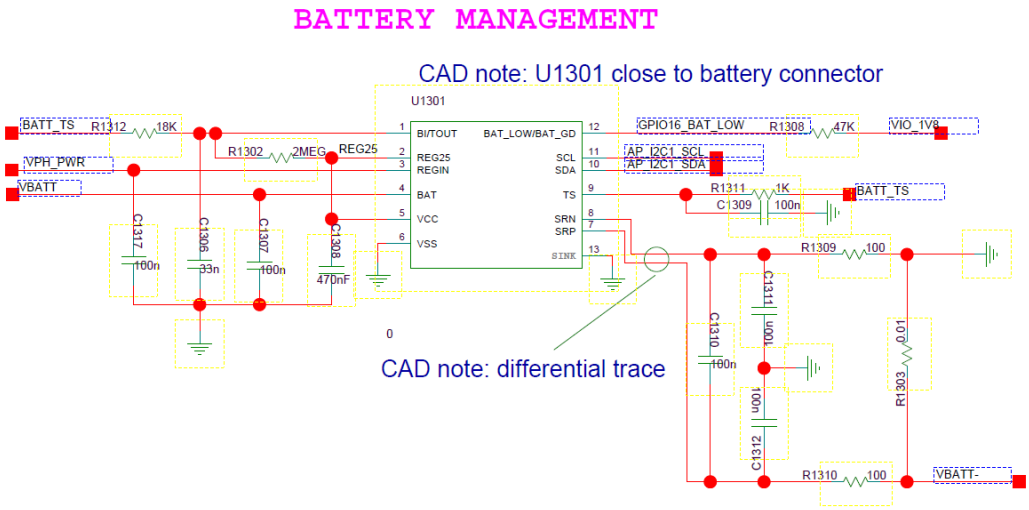
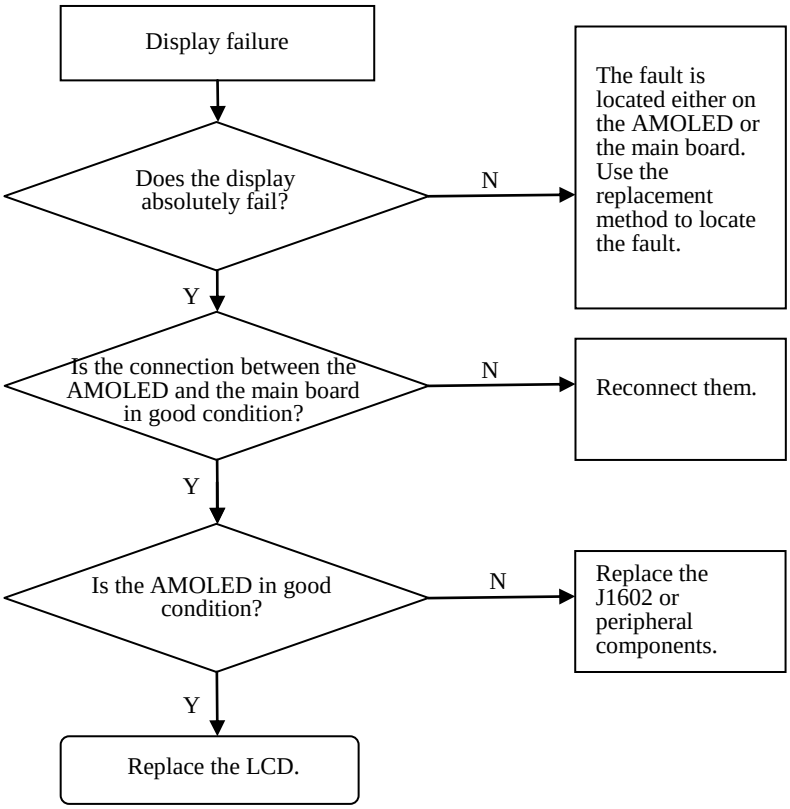


Figure 9-7 Schematic diagram of the battery management module



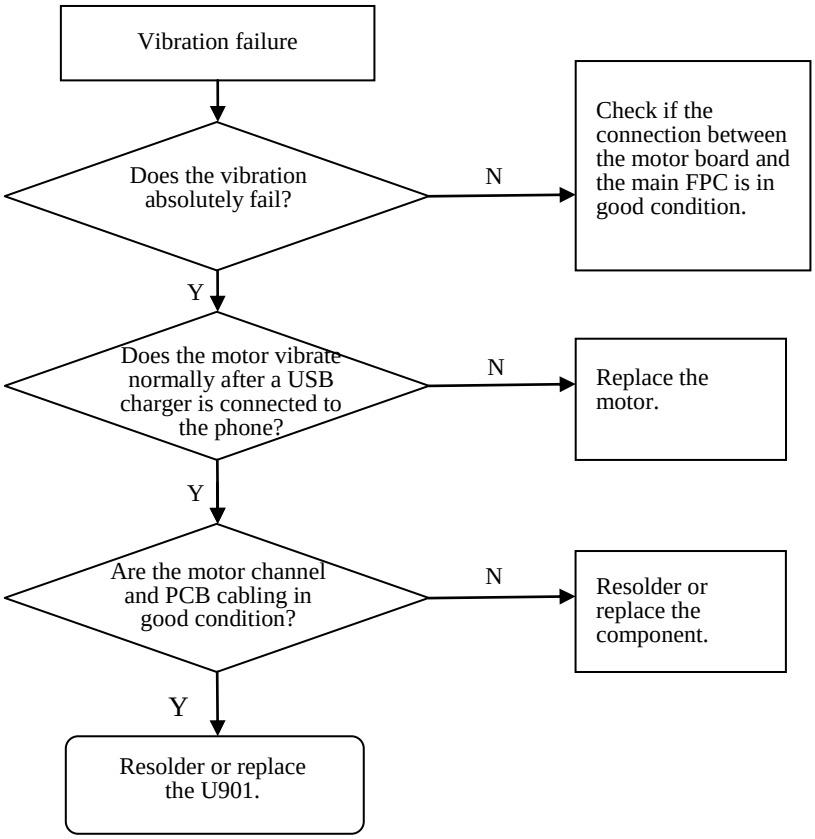
9.4 Display Failure

Figure 9-8 Display failure troubleshooting process



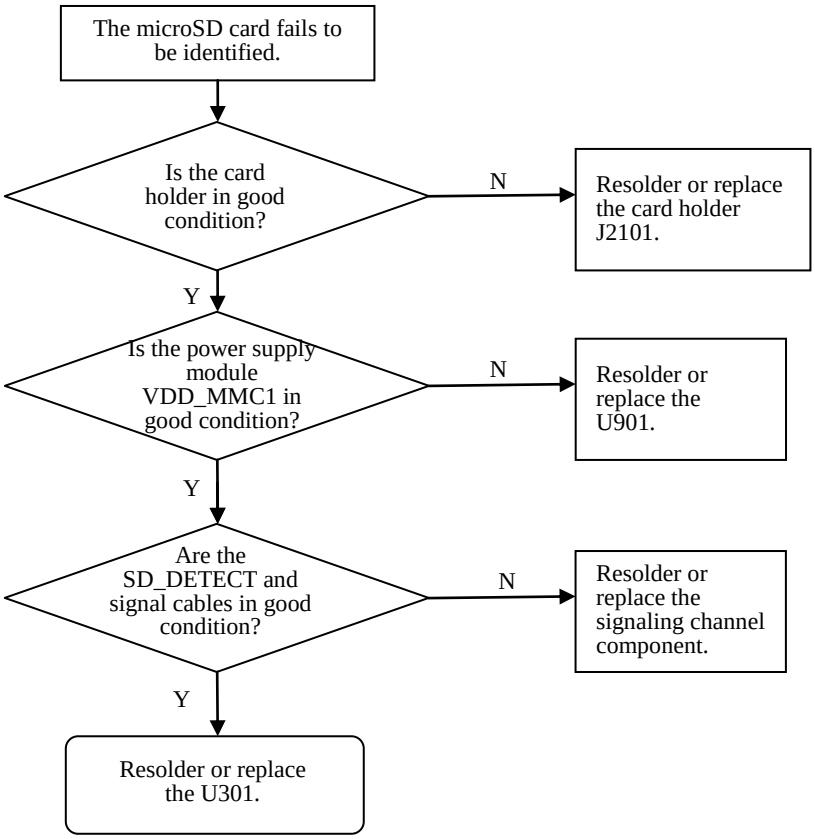
9.5 Vibration Failure

Figure 9-9 Vibration failure troubleshooting process



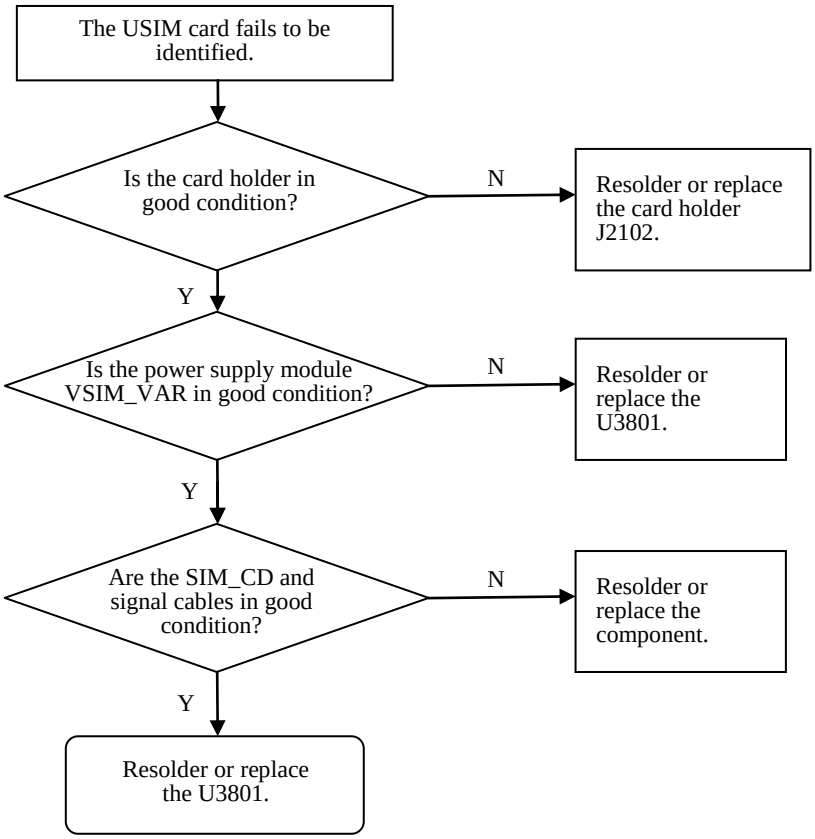
9.6 microSD Card Detection Failure

Figure 9-10 microSD card detection failure troubleshooting process



9.7 USIM Card Identification Failure

Figure 9-11 USIM card detection failure troubleshooting process

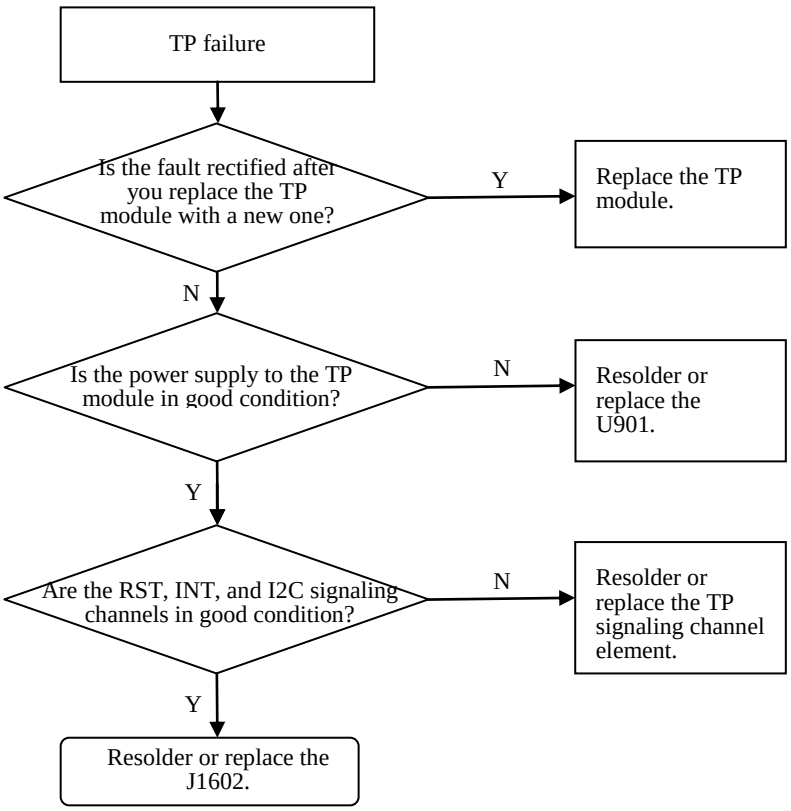


9.8 Touchscreen Failure

When the touchscreen is faulty, the LCD can display information but cannot be unlocked.

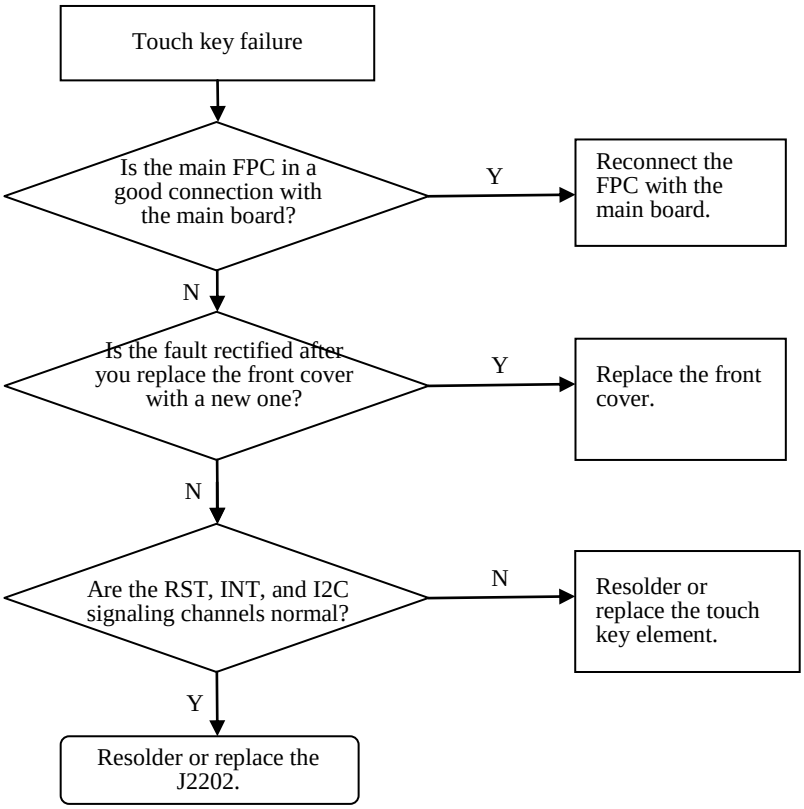
The touchscreen is an independent component, and shares multiplexing ports of power supply and communication with other unit circuits; therefore, when the touchscreen is faulty, you can adopt the replacement method to locate the fault. Replace the AMOLED and touchscreen module with new modules, and determine the fault is located on the touchscreen or the main board.

Figure 9-12 Touchscreen failure troubleshooting process



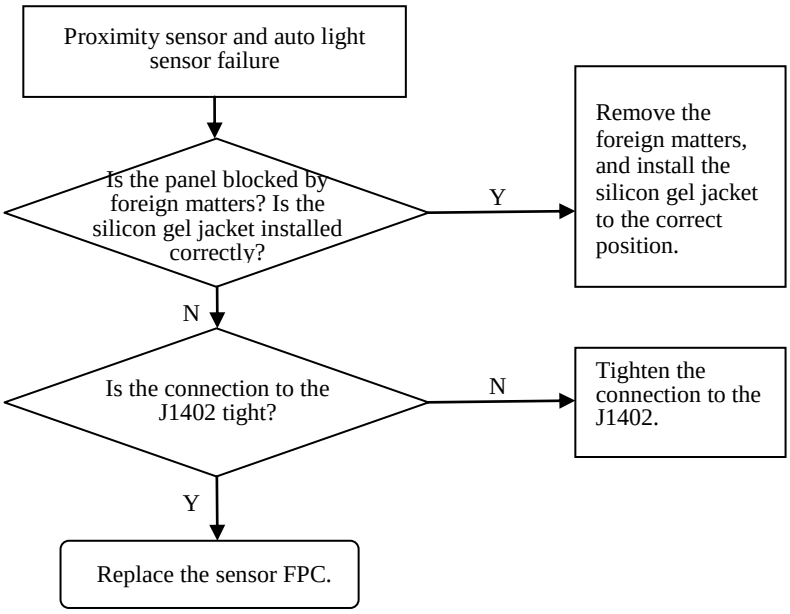
9.9 Touch Key Failure

Figure 9-13 Touch key failure troubleshooting process



9.10 Proximity Sensor and Auto Light Sensor Failure

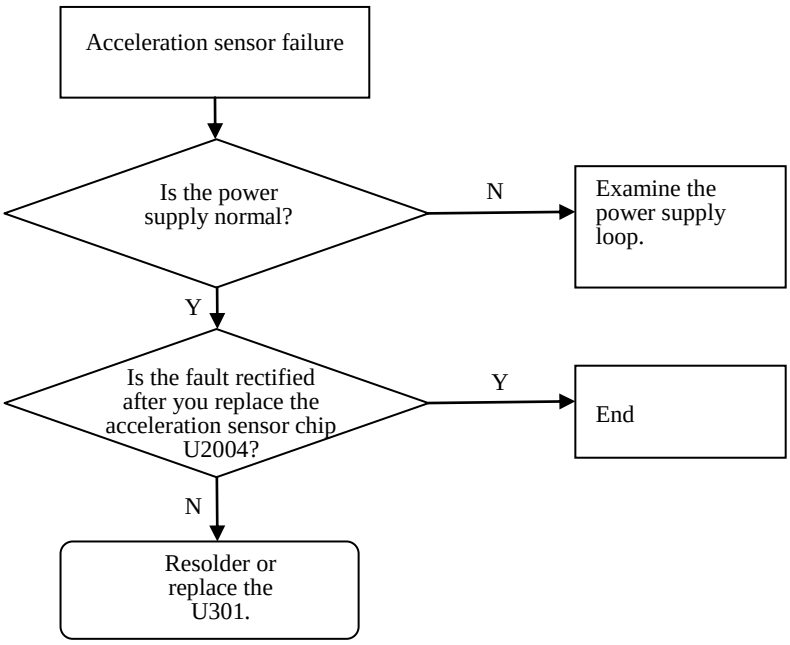
Figure 9-14 Proximity sensor and auto light sensor failure troubleshooting process



9.11 Acceleration Sensor Failure

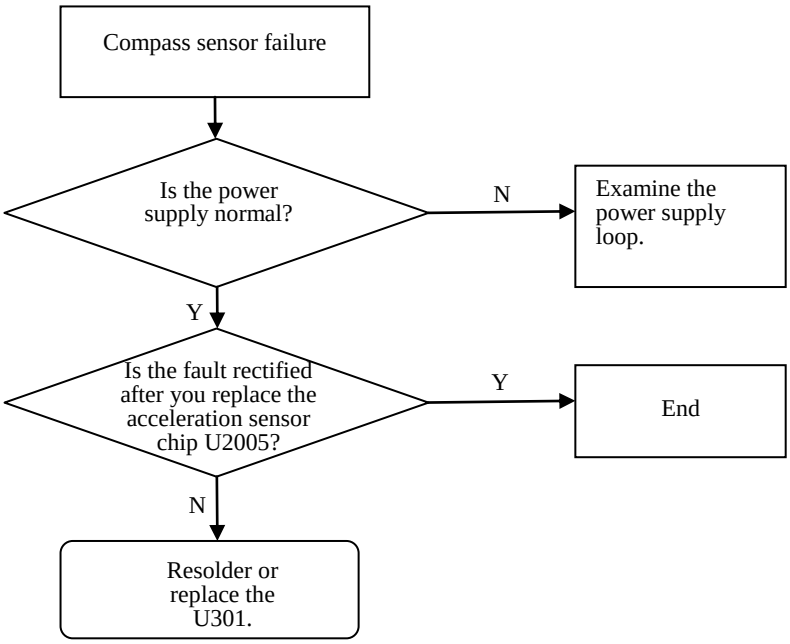
If the acceleration sensor is faulty, the compass sensor does not function because the software of the compass sensor depends on the acceleration sensor. This is a basis for determining the acceleration sensor failure.

Figure 9-15 Acceleration sensor failure troubleshooting process



9.12 Compass Sensor Failure

Figure 9-16 Compass sensor failure troubleshooting process



9.13 Camera Failure

Determine which camera, the front or the rear, is faulty using the specific software.

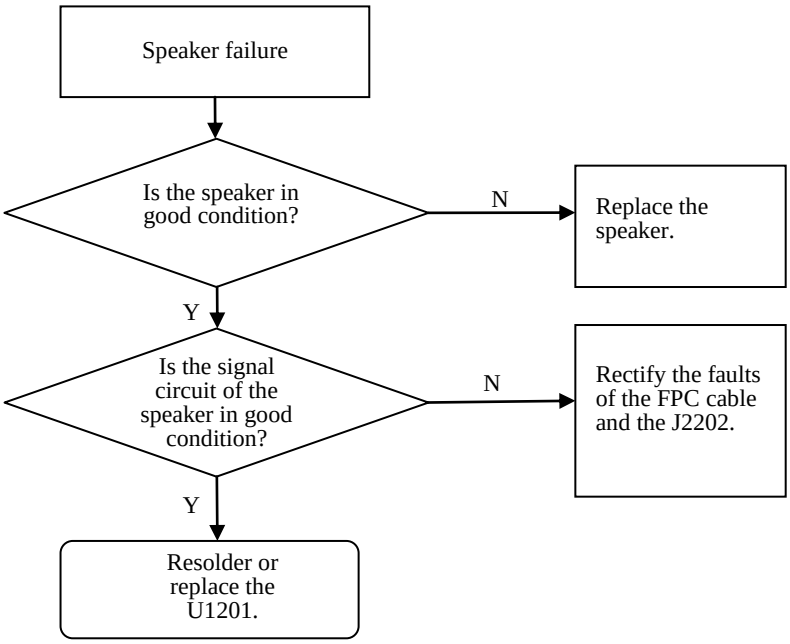
The current design is that the components are connected by BTB connectors and the front and rear cameras share one bus. Therefore, if one camera is faulty, assuming that the other one is good, replace this faulty camera, and check whether the fault is rectified.

If both cameras are faulty, check whether the cameras can be identified by software and whether the power supply is normal. If they cannot be identified or the power supply is abnormal, check the circuits on the main board.

9.14 Audio Failure

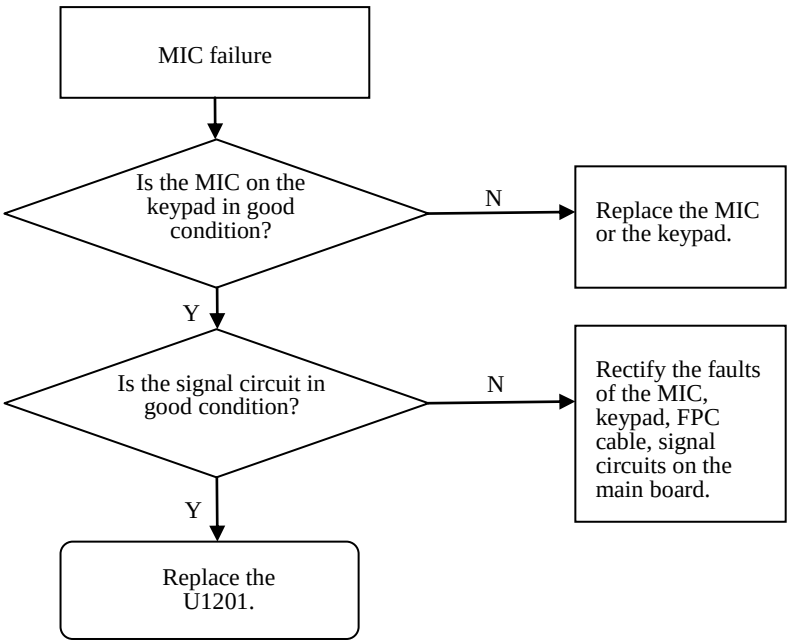
9.14.1 Speaker Failure

Figure 9-17 Speaker failure troubleshooting process



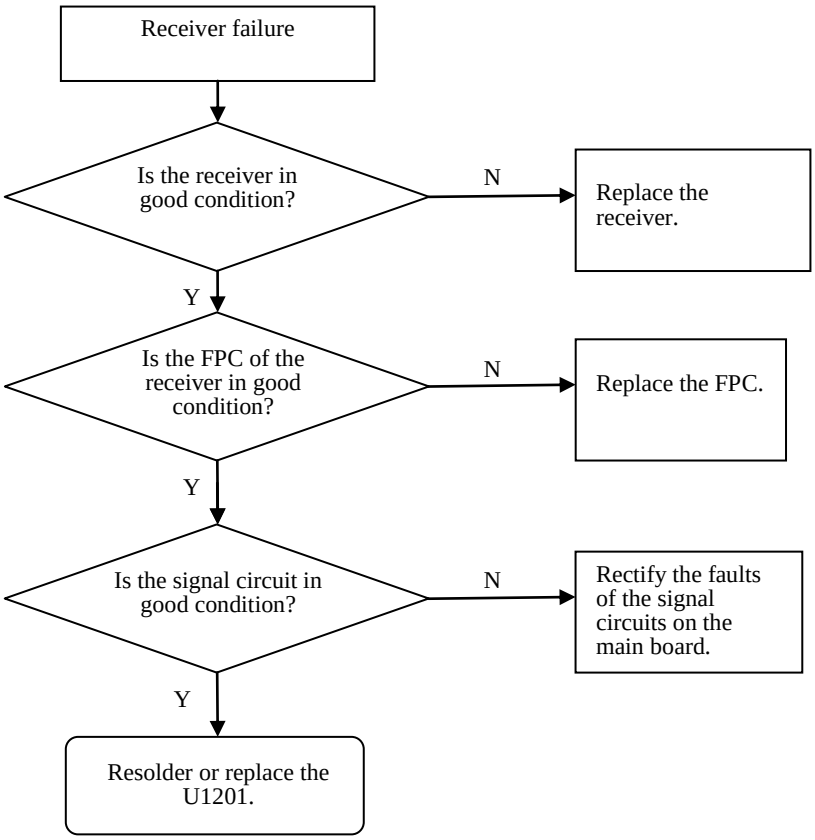
9.14.2 MIC Failure

Figure 9-18 MIC failure troubleshooting process



9.14.3 Receiver Failure

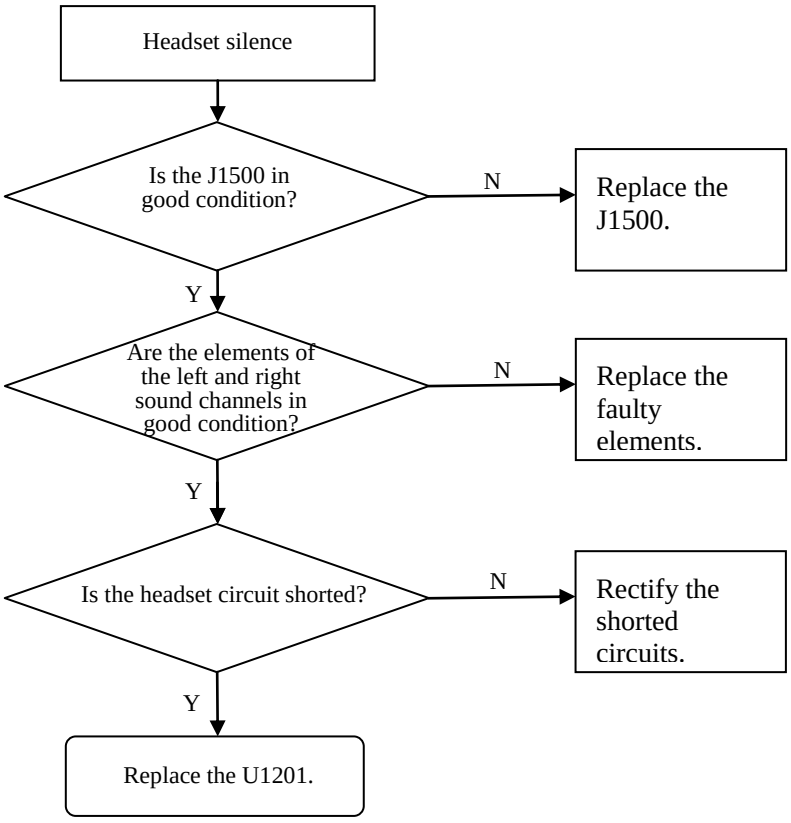
Figure 9-19 Receiver failure troubleshooting process



9.15 Headset Failure

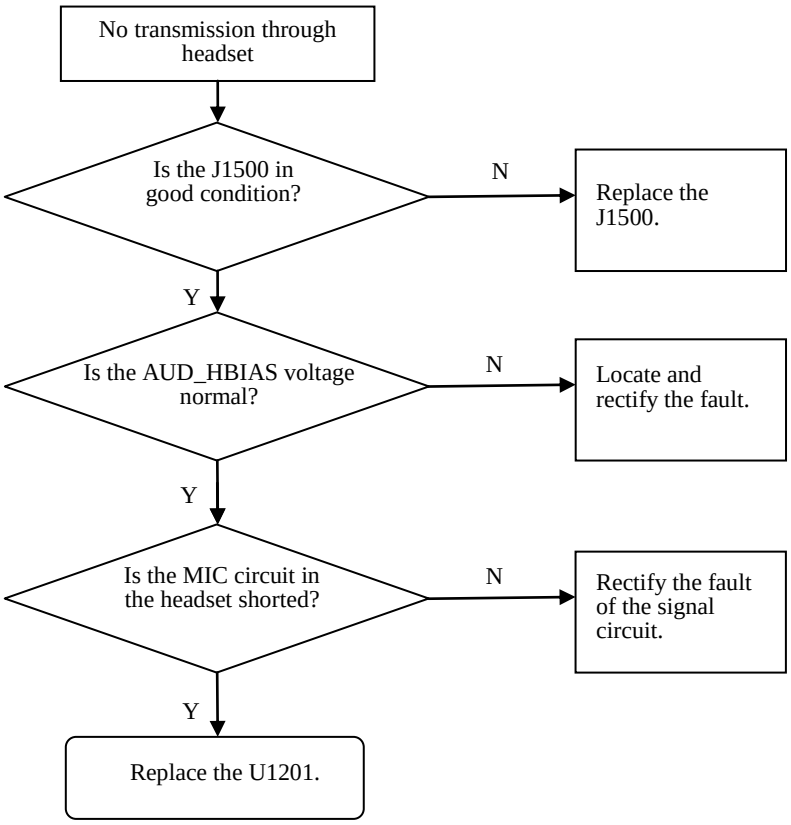
9.15.1 No Sound from Headset Receiver

Figure 9-20 No sound from the headset receiver issue troubleshooting process



9.15.2 No Sound Transmitted Through Headset Microphone

Figure 9-21 No sound transmitted through the headset microphone issue troubleshooting process



9.16 Wi-Fi/Bluetooth Failure

Figure 9-22 Wi-Fi/Bluetooth failure troubleshooting process

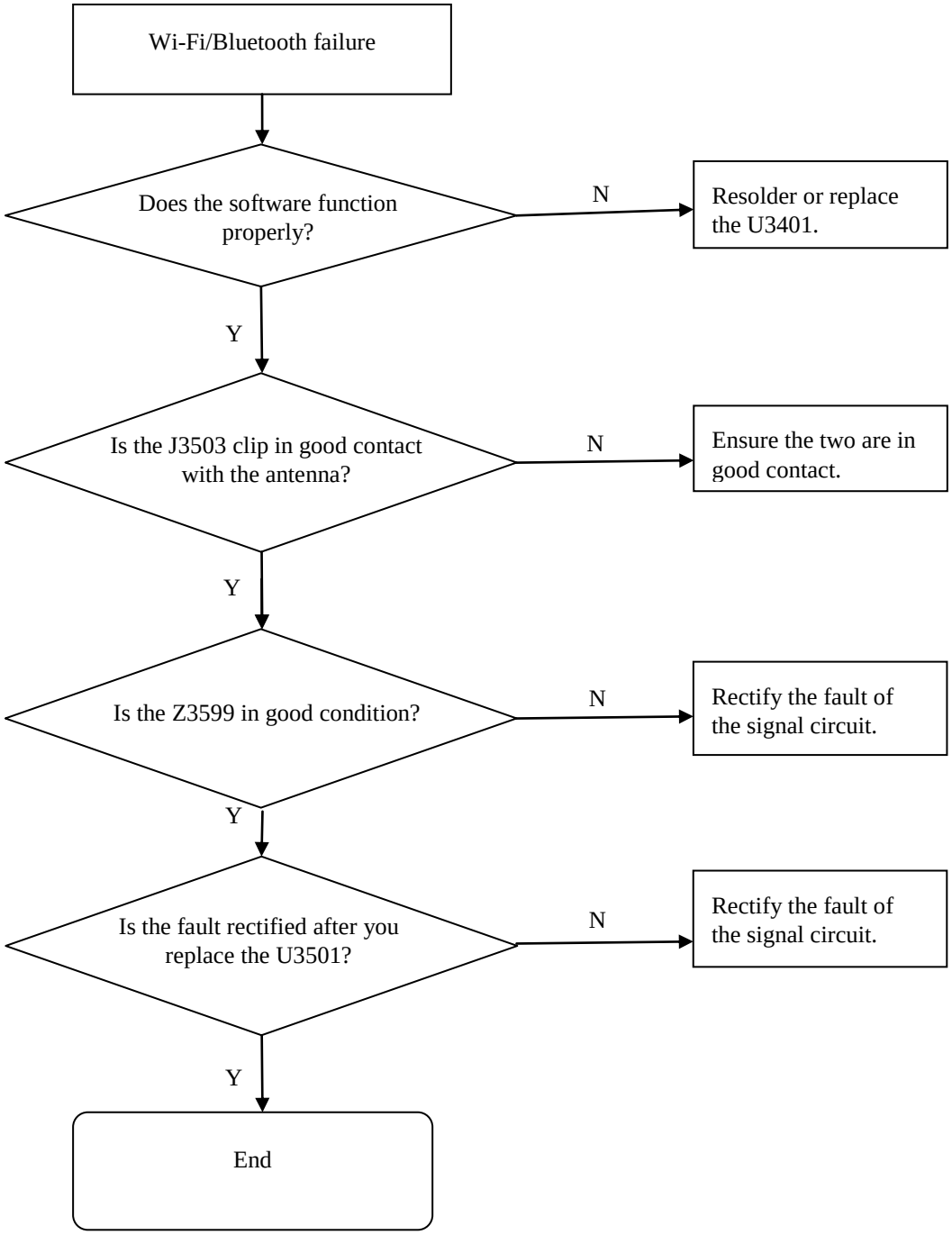
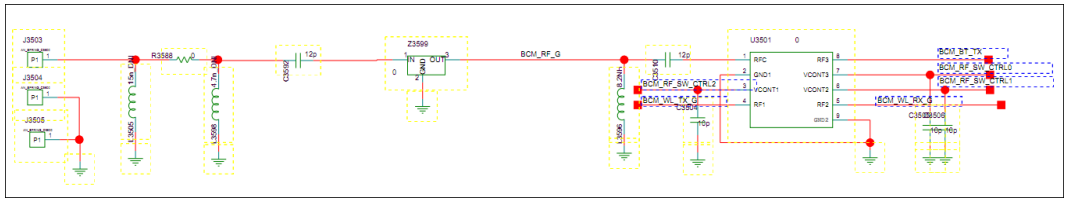
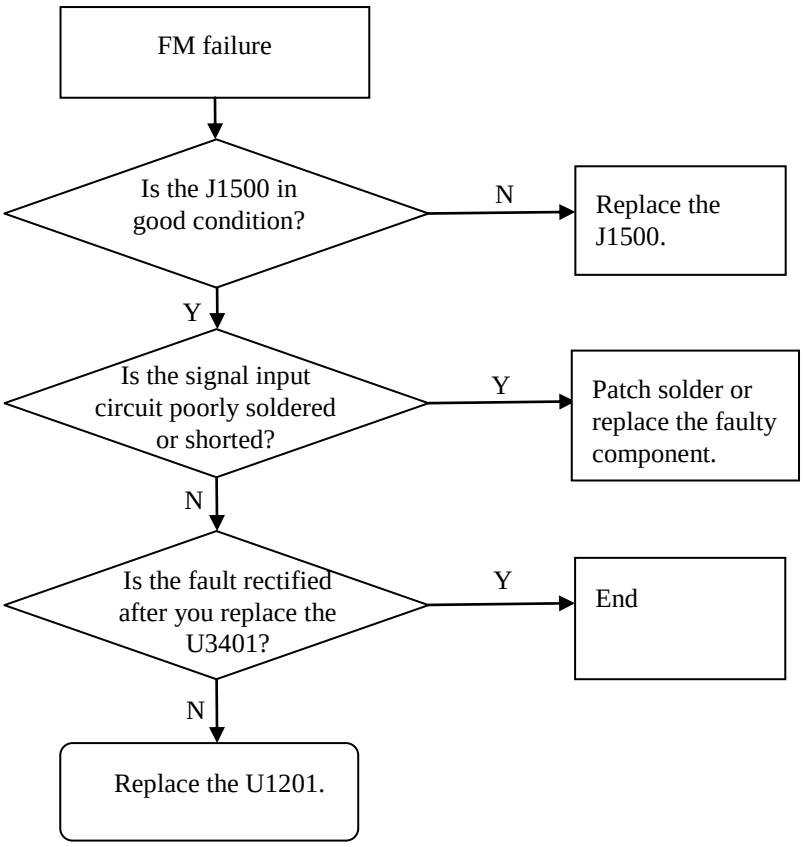


Figure 9-23 Schematic diagram of Wi-Fi/Bluetooth signal input circuit



9.17 FM Failure

Figure 9-24 FM failure troubleshooting process



9.18 GPS Failure

Figure 9-25 GPS failure troubleshooting process

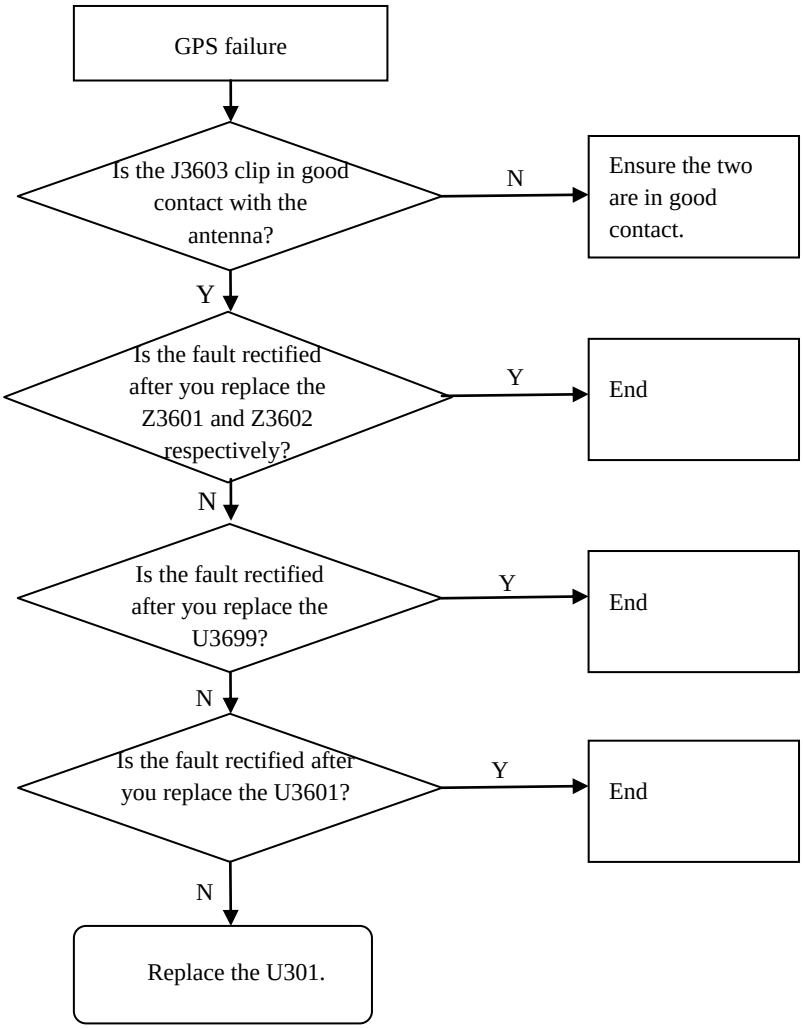
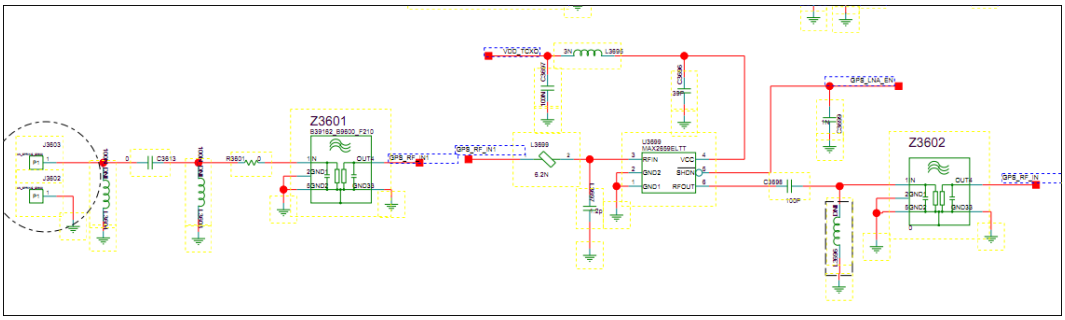
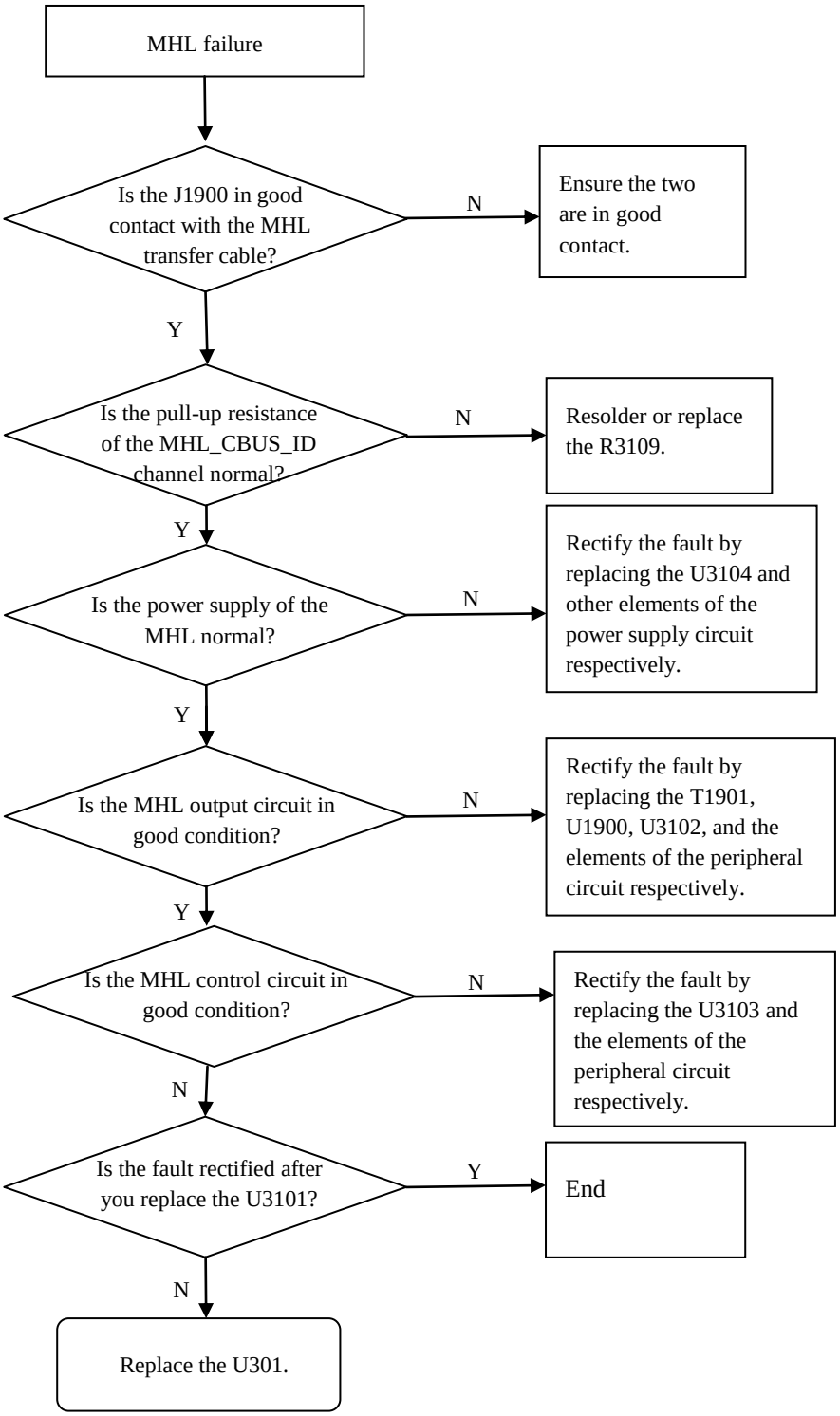


Figure 9-26 Schematic diagram of GPS circuit



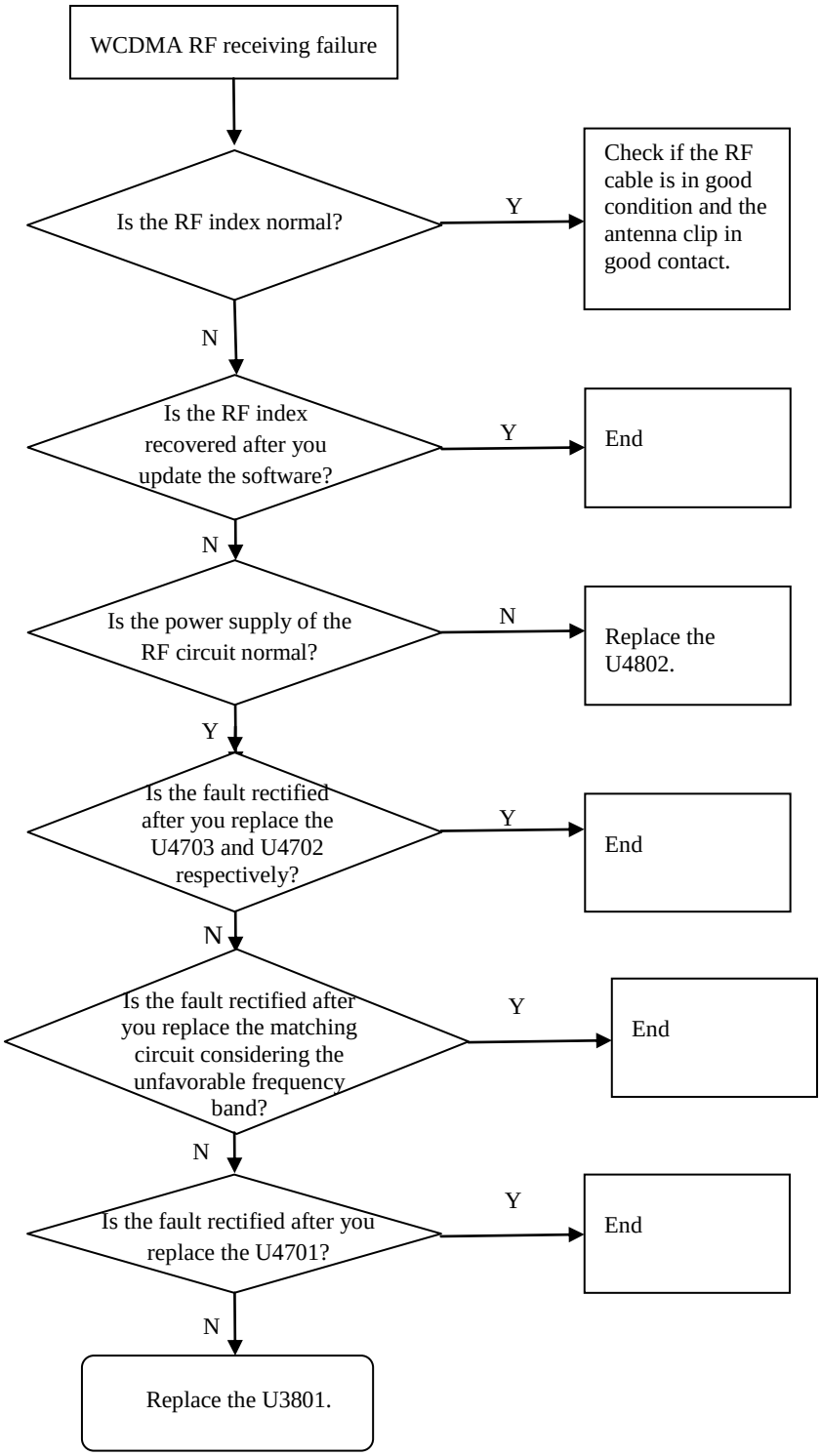
9.19 MHL Failure

Figure 9-27 MHL failure troubleshooting process



9.20 WCDMA RF Receiving Failure

Figure 9-28 WCDMA RF receiving failure troubleshooting process

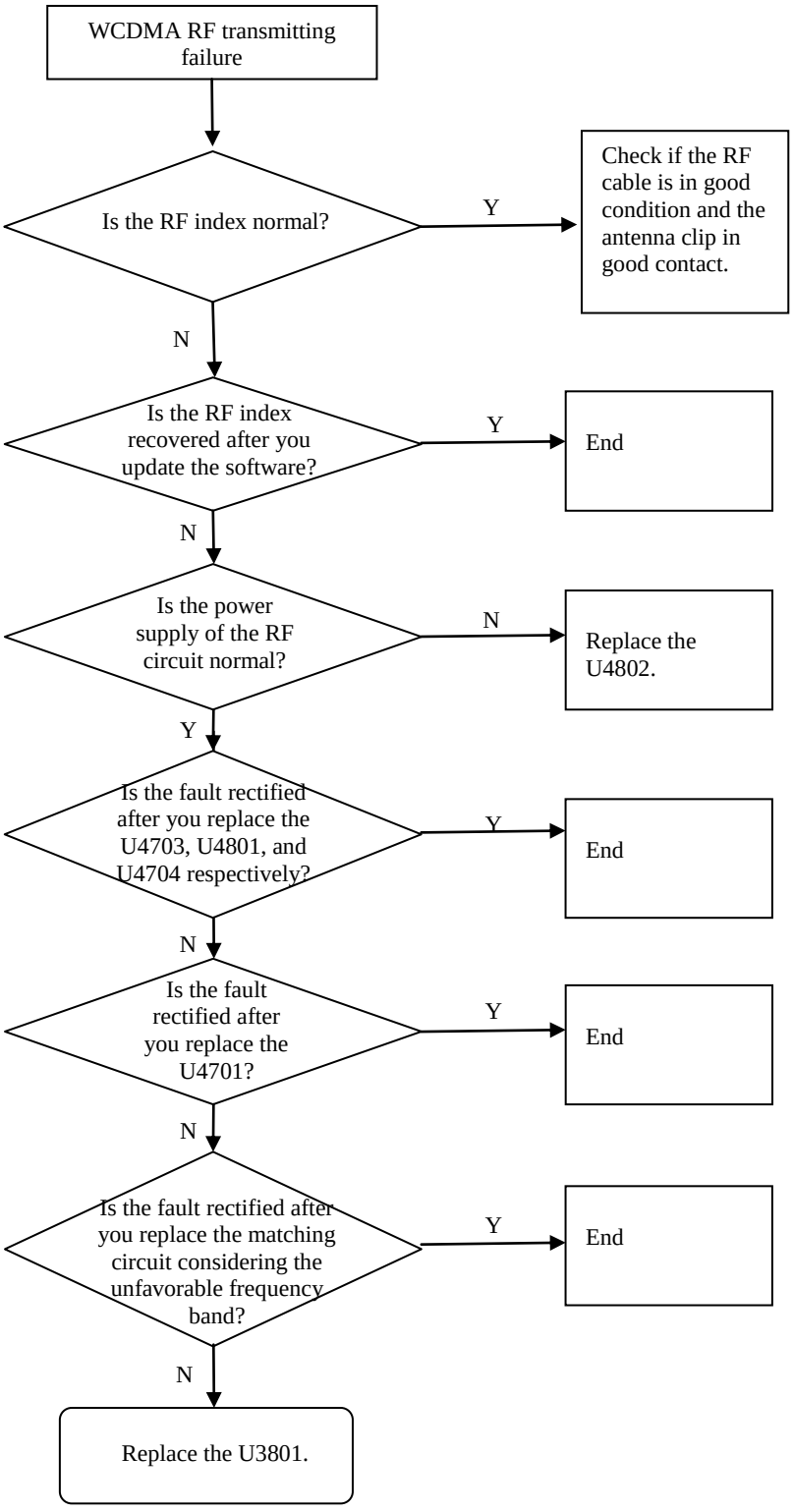


NOTE

If all the RF indexes are abnormal, check the power supply circuit, antenna feedpoint, antenna switch board, antenna cable, and RF test socket.

9.21 WCDMA RF Transmitting Failure

Figure 9-29 WCDMA RF transmitting failure troubleshooting process

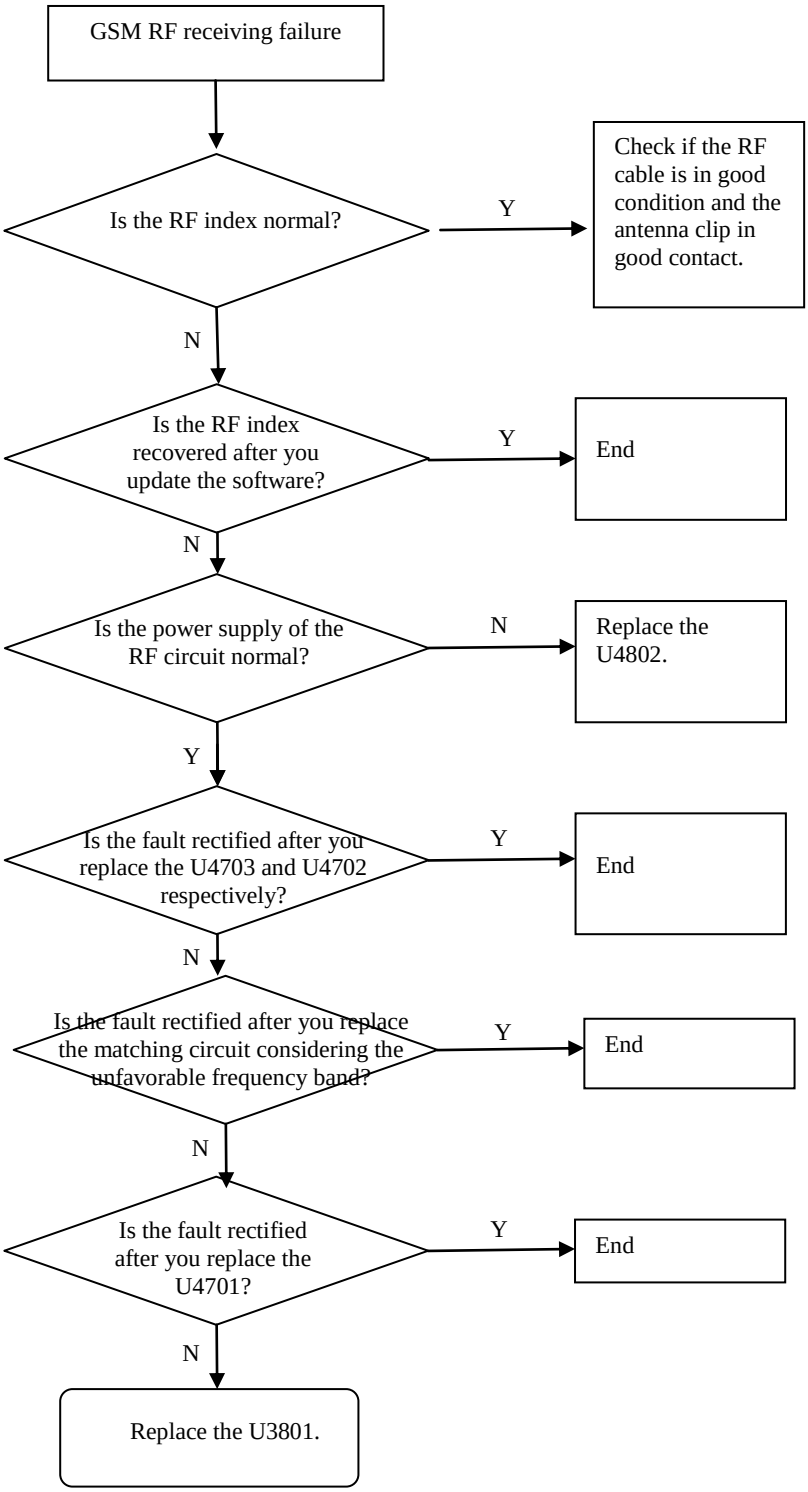


NOTE

If all the RF indexes are abnormal, check the power supply circuit, DC/DC transformer supplying power to the PA, antenna switch chip, RF cable, and main chip.

9.22 GSM RF Receiving Failure

Figure 9-30 GSM RF receiving failure troubleshooting process

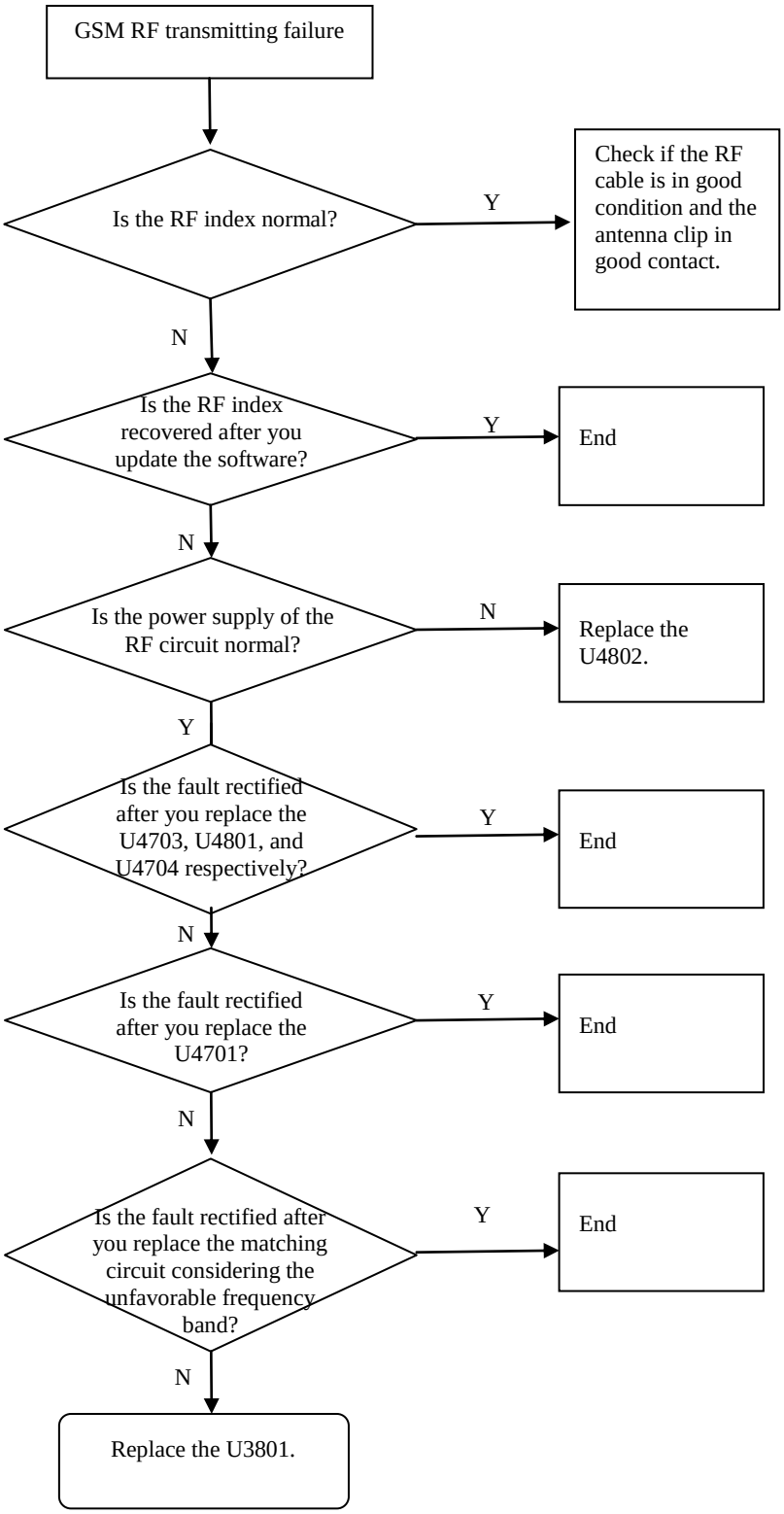


NOTE

If all the RF indexes are abnormal, check the power supply circuit, antenna feedpoint, antenna switch board, antenna cable, and RF test socket.

9.23 GSM RF Transmitting Failure

Figure 9-31 GSM RF transmitting failure troubleshooting process



NOTE

If all the RF indexes are abnormal, check the power supply circuit, antenna feedpoint, antenna switch board, antenna cable, and RF test socket.

10 Functional Test

10.1 Keypad Introduction

Figure 10-1 U9200 keypad

Generally, a smartphone has only a few keys. The U9200 has six keys, including three Android system keys on the touchscreen, a power key, volume up key, and volume down key.

The U9200 battery cannot be replaced; therefore, the power key is designed with a forcible power-off function. To power off the phone, press the power key for 10 seconds, which facilitates the software upgrade.

10.2 MMI Test

Enter ***#*#2846579#*#***, and select **MMI Test_II**. The LCD displays "Starting MMI test". Press the volume down key to start the MMI test. If a test item fails, touch the Menu key to end the current test, press the volume down key to enter the next test, and press the back key to return to the previous test. If one test is complete, press the volume down key to proceed to the next test. The following table lists the test items.

No.	Item	Test Method and Procedure
1	Board test	This test usually is not displayed. If the CBD test was omitted on the production line, the LCD displays a message indicating that the board test fails.
2	microSD card test	If the phone has a microSD card inserted, and the microSD card functions properly, the system proceeds to the next test; otherwise, the system displays "No microSD card".
3	Battery test	Check the battery voltage. If the battery charge level is lower than 3%, the voltage is larger than 4.2 V, or the battery temperature is not within –200 ℉ to +700 ℉, the LCD displays a message indicating that the battery test fails.
4	Keypad test	The LCD displays the keypad. When a key is pressed, this key turns purple; when it is released, it recovers to the original color.
	LCD test	The LCD displays a white screen.
		The LCD displays a black screen.
		The LCD displays RGB strips.
		The lightness of LCD backlight is enhanced gradually and then cyclically.
6	Keypad LED test	The keypad LED is lighted cyclically.
7	Rear camera test	The LCD immediately displays the pictures taken by the camera. Check whether the camera is of high performance by comparing the picture quality and response speed. Press the volume up and volume down keys concurrently to test the camera flash, and if the flash does not light up, the flash is faulty.
8	Front camera test	The LCD displays the pictures immediately taken by the camera. Check whether the camera is of high performance by comparing the picture quality and response speed.
9	Touchscreen test	Touch the peripheral area of the touchscreen, and if the outer area turns red, the test is successful.
10	Proximity sensor test	Place the baffle plate above the receiver and 4 mm above the light penetration hole, and if a phone image appears beside the head image, the test is successful.
11	Ambient light sensor test	Check whether the system records the data of ambient light and whether the data changes as the ambient light changes.
12	Motor test	The motor vibrates periodically.
13	Speaker test	The speaker plays the ringtone. If a headset is inserted, the ringtone is played from the headset receiver.
14	Receiver test	The speaker plays the ringtone. The ringtone is played from the receiver.

No.	Item	Test Method and Procedure
13	Phone loopback test	Primary microphone test: Touch the Record button on the touchscreen, speak towards the primary microphone, and then touch the Play icon. You can hear the recorded sound from the receiver.
		Secondary microphone test: Touch the Record icon on the touchscreen, speak towards the secondary microphone, and then touch the Play button. You can hear the recorded sound from the receiver.
		Double microphone loopback test: Touch the Record icon on the touchscreen, speak towards both the primary and secondary microphones, and then touch the Play button. You can hear the recorded sound from the receiver.
14	Headset loopback test	Insert the headset, touch the Record button, speak towards the headset microphone, and touch the Play button. You can hear the recorded sound from the headset receiver.
15	FM test	After the headset is inserted, the LCD displays the channels available. The FM plays the contents on frequency bands 8800, 9800, and 10700. The button in the lower left corner is used to switch between channels. This test requires you to check whether the FM functions properly.
16	Headset controller test	After the headset is inserted, the In icon turns green. Press the answer key on the headset, and the large cycle on the LCD turns to a small one as its color turns from blue to brown. Pull out the headset. If the Out icon also turns green, the test is successful.
17	HDMI test	The LCD indicates that the phone is under the HDMI test. Use a USB cable to connect the phone to a high definition television. Check whether the video and audio can be transmitted to the television. If they cannot, touch the Menu key; if they can, press the volume down key to proceed to the next test.
18	Bluetooth test	The phone starts to search for Bluetooth devices and displays the names and MAC addresses of the Bluetooth devices found. (Note: To perform this test, another phone with Bluetooth enabled is required.)
19	Gravity sensor test	Place the phone in the direction displayed on the LCD. When all the icons on the LCD are marked with a √, the test is passed.
20	Gyroscope and compass test	The phone performs the gyroscope and compass test in the background. If the test is successful, the phone will directly proceed to the next test without displaying any messages. If the test fails, the LCD displays the error information.
21	Wi-Fi test	The phone automatically searches for available Wi-Fi networks.
22	SIM card test	The phone starts the SIM card detection. If the SIM card fails to be detected, the LCD displays the error information. Press the volume down key to enter the next test. If the SIM card is detected, the system automatically proceeds to the next test.

No.	Item	Test Method and Procedure
After the MMI test is completed, press the volume down key. The LCD displays the test results, where the failed items are listed.		

10.3 Wi-Fi Test

NOTE

To ensure the network connection is normal, please place the phone within 15 meters of the access point (AP) and no obstacle exists between the phone and AP.

1. Set AP correctly, switch on the phone and place it within the transmitting range of AP.
2. Touch the Menu key, and select **System settings > WLAN > On > Scan**.
3. After the service set identifier (SSID) of AP is found automatically, touch it and enter the password to connect the phone to the network.
4. Adjust the distance between the phone and AP to observe the change of Wi-Fi network signal strength.
5. When the network connection is normal, start the web browser and access a website to test the network quality.
6. If the test is successful, stop the Wi-Fi test. If the test fails, repair the phone again or send it to the advanced maintenance center.

10.4 Voice Call Test

1. Install the user identification module (UIM) card.
2. Press the Power key to switch on the phone.
3. When the network connection is normal, check whether the change of the phone signal strength is within a specified limit.
4. Dial a fixed line to conduct a voice call and test the voice quality.
5. If the test is successful, stop the voice call test. If the test fails, repair the phone again or send it to the advanced maintenance center.